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Notice for TAIYO YUDEN Products

[For High Quality and/or Reliability Equipment
(Automotive / Industrial Equipment)]

Please read this notice before using the TAIYO YUDEN products.

REMINDERS

- Product information in this catalog is as of October 2017. All of the contents specified herein are subject to change without notice due to technical improvements, etc. Therefore, please check for the latest information carefully before practical application or use of our products.

Please note that TAIYO YUDEN shall not be in any way responsible for any damages and defects in products or equipment incorporating our products, which are caused under the conditions other than those specified in this catalog or individual product specification sheets.

- Please contact TAIYO YUDEN for further details of product specifications as the individual product specification sheets are available.
- Please conduct validation and verification of our products in actual condition of mounting and operating environment before using our products.
- The products listed in this catalog are intended for use in general electronic equipment (e.g., AV equipment, OA equipment, home electric appliances, office equipment, information and communication equipment), medical equipment classified as Class I or II by IMDRF, industrial equipment, and automotive interior applications, etc. Please be sure to contact TAIYO YUDEN for further information before using the products for any equipment which may directly cause loss of human life or bodily injury (e.g., transportation equipment including, without limitation, automotive powertrain control system, train control system, and ship control system, traffic signal equipment, medical equipment classified as Class III by IMDRF).

Please do not incorporate our products into any equipment requiring high levels of safety and/or reliability (e.g., aerospace equipment, aviation equipment*, medical equipment classified as Class IV by IMDRF, nuclear control equipment, undersea equipment, military equipment).

*Note: There is a possibility that our products can be used only for aviation equipment that does not directly affect the safe operation of aircraft (e.g., in-flight entertainment, cabin light, electric seat, cooking equipment) if such use meets requirements specified separately by TAIYO YUDEN. Please be sure to contact TAIYO YUDEN for further information before using our products for such aviation equipment.

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- Information contained in this catalog is intended to convey examples of typical performances and/or applications of our products and is not intended to make any warranty with respect to the intellectual property rights or any other related rights of TAIYO YUDEN or any third parties nor grant any license under such rights.
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REFLOW
AEC-Q200

MULTILAYER CERAMIC CAPACITORS

■ PART NUMBER

J	M	K	3	1	6	△	B	J	1	0	6	M	L	H	T	△
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩	⑪	⑫					

△=Blank space

① Rated voltage

Code	Rated voltage [VDC]
A	4
J	6.3
L	10
E	16
T	25
G	35
U	50
H	100
Q	250
S	630

③ End termination

Code	End termination
K	Plated
J	Soft Termination
S	Cu Internal Electrodes
F	High Reliability Application

② Series name

Code	Series name
M	Multilayer ceramic capacitor
V	Multilayer ceramic capacitor for high frequency
W	LW reverse type multilayer capacitor

④ Dimension (L × W)

Type	Dimensions (L × W) [mm]	EIA (inch)
063	0.6 × 0.3	0201
105	1.0 × 0.5	0402
	0.52 × 1.0 ※	0204
107	1.6 × 0.8	0603
	0.8 × 1.6 ※	0306
212	2.0 × 1.25	0805
	1.25 × 2.0 ※	0508
316	3.2 × 1.6	1206
325	3.2 × 2.5	1210
432	4.5 × 3.2	1812

Note : ※LW reverse type (□WK) only

⑤ Dimension tolerance

Code	Type	L [mm]	W [mm]	T [mm]
△	ALL	Standard	Standard	Standard
A	063	0.6±0.05	0.3±0.05	0.3±0.05
	105	1.0±0.10	0.5±0.10	0.5±0.10
	107	1.6+0.15/-0.05	0.8+0.15/-0.05	0.8+0.15/-0.05
	212	2.0+0.15/-0.05	1.25+0.15/-0.05	0.85±0.10 1.25+0.15/-0.05
	316	3.2±0.20	1.6±0.20	1.6±0.20
	325	3.2±0.30	2.5±0.30	2.5±0.30
B	105	1.0+0.15/-0.05	0.5+0.15/-0.05	0.5+0.15/-0.05
	107	1.6+0.20/-0	0.8+0.20/-0	0.8+0.20/-0
	212	2.0+0.20/-0	1.25+0.20/-0	0.85±0.10 1.25+0.20/-0
C	105	1.0+0.20/-0	0.5+0.20/-0	0.5+0.20/-0
	107	1.6+0.25/-0	0.8+0.25/-0	0.8+0.25/-0
	212	2.0+0.25/-0	1.25+0.25/-0	1.25+0.25/-0
K	212	2.0±0.15	1.25±0.15	0.85±0.15 1.15±0.20 1.6±0.20
	316	3.2±0.20	1.6±0.20	1.6±0.20
	325	3.2±0.50	2.5±0.30	2.5±0.30

Note: cf. STANDARD EXTERNAL DIMENSIONS

△= Blank space

⑥ Temperature characteristics code

■ High dielectric type

Code	Applicable standard	Temperature range [°C]	Ref. Temp. [°C]	Capacitance change	Capacitance tolerance	Tolerance code
BJ	EIA	X5R	-55~+85	25	±15%	±10%
						±20%
C6	EIA	X6S	-55~+105	25	±22%	±10%
						±20%
B7	EIA	X7R	-55~+125	25	±15%	±10%
						±20%
C7	EIA	X7S	-55~+125	25	±22%	±10%
						±20%
D7	EIA	X7T	-55~+125	25	+22%/-33%	±10%
						±20%

▶ This catalog contains the typical specification only due to the limitation of space. When you consider the purchase of our products, please check our product specification sheets. For details of each product (characteristics graph, reliability information, precautions for use, and so on), see our website (<http://www.ty-top.com/>).

■ Temperature compensating type

Code	Applicable standard		Temperature range [°C]	Ref. Temp. [°C]	Capacitance change	Capacitance tolerance	Tolerance code
CG	JIS	CG	-55 ~ +125	20	0 ± 30ppm/°C	± 0.1pF	B
						± 0.25pF	C
						± 0.5pF	D
	EIA	C0G		25		± 1pF	F
						± 2%	G
						± 5%	J

⑦ Nominal capacitance

Code (example)	Nominal capacitance
0R5	0.5pF
010	1pF
100	10pF
101	100pF
102	1,000pF
103	0.01 μ F
104	0.1 μ F
105	1.0 μ F
106	10 μ F
107	100 μ F

Note : R=Decimal point

⑧ Capacitance tolerance

Code	Capacitance tolerance
B	± 0.1pF
C	± 0.25pF
D	± 0.5pF
G	± 2%
J	± 5%
K	± 10%
M	± 20%

⑨ Thickness

Code	Thickness [mm]
P	0.3
T	
V	0.5
C	0.7 (107type or more)
A	0.8
D	0.85 (212type or more)
F	1.15
G	1.25
L	1.6
N	1.9
M	2.5

⑩ Special code

Code	Special code
H	MLCC for Industrial and Automotive

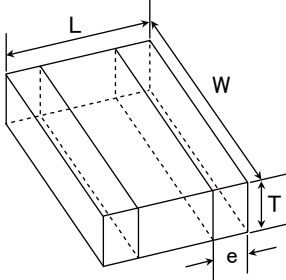
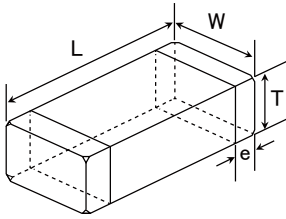
⑪ Packaging

Code	Packaging
F	ϕ 178mm Taping (2mm pitch)
R	ϕ 178mm Embossed Taping (4mm pitch)
T	ϕ 178mm Taping (4mm pitch)
P	ϕ 178mm Taping (4mm pitch, 1000 pcs/reel) 325 type (Thickness code M)

⑫ Internal code

Code	Internal code
Δ	Standard

STANDARD EXTERNAL DIMENSIONS



※ LW reverse type

Type(EIA)	Dimension [mm] (inch)				
	L	W	T	*1	e
□MK063(0201)	0.6±0.03 (0.024±0.001)	0.3±0.03 (0.012±0.001)	0.3±0.03 (0.012±0.001)	T	0.15±0.05 (0.006±0.002)
□MK105(0402) □MF105(0402)	1.0±0.05 (0.039±0.002)	0.5±0.05 (0.020±0.002)	0.5±0.05 (0.020±0.002)	V	0.25±0.10 (0.010±0.004)
□WK105(0204)※	0.52±0.05 (0.020±0.002)	1.0±0.05 (0.039±0.002)	0.3±0.05 (0.012±0.002)	P	0.18±0.08 (0.007±0.003)
□MK107(0603) □MF107(0603)	1.6±0.10 (0.063±0.004)	0.8±0.10 (0.031±0.004)	0.8±0.10 (0.031±0.004)	A	0.35±0.25 (0.014±0.010)
□MJ107(0603)	1.6±0.10 (0.063±0.004)	0.8±0.10 (0.031±0.004)	0.8±0.10 (0.031±0.004)	A	0.35+0.3/-0.25 (0.014+0.012/-0.010)
□VS107(0603)	1.6±0.10 (0.063±0.004)	0.8±0.10 (0.031±0.004)	0.7±0.10 (0.028±0.004)	C	0.35±0.25 (0.014±0.010)
□WK107(0306)※	0.8±0.10 (0.031±0.004)	1.6±0.10 (0.063±0.004)	0.5±0.05 (0.020±0.002)	V	0.25±0.15 (0.010±0.006)
□MK212(0805) □MF212(0805)	2.0±0.10 (0.079±0.004)	1.25±0.10 (0.049±0.004)	0.85±0.10 (0.033±0.004)	D	0.5±0.25 (0.020±0.010)
1.25±0.10 (0.049±0.004)			G		
□MJ212(0805)	2.0±0.10 (0.079±0.004)	1.25±0.10 (0.049±0.004)	0.85±0.10 (0.033±0.004)	D	0.5+0.35/-0.25 (0.020+0.014/-0.010)
1.25±0.10 (0.049±0.004)			G		
□VS212(0805)	2.0±0.10 (0.079±0.004)	1.25±0.10 (0.049±0.004)	0.85±0.10 (0.033±0.004)	D	0.5±0.25 (0.020±0.010)
□WK212(0508)※	1.25±0.15 (0.049±0.006)	2.0±0.15 (0.079±0.006)	0.85±0.10 (0.033±0.004)	D	0.3±0.2 (0.012±0.008)
□MK316(1206) □MF316(1206)	3.2±0.15 (0.126±0.006)	1.6±0.15 (0.063±0.006)	1.15±0.10 (0.045±0.004)	F	0.5+0.35/-0.25 (0.020+0.014/-0.010)
1.6±0.20 (0.063±0.008)			L		
□MJ316(1206)	3.2±0.15 (0.126±0.006)	1.6±0.15 (0.063±0.006)	1.15±0.10 (0.045±0.004)	F	0.6+0.4/-0.3 (0.024+0.016/-0.012)
1.6±0.20 (0.063±0.008)			L		
□MK325(1210) □MF325(1210)	3.2±0.30 (0.126±0.012)	2.5±0.20 (0.098±0.008)	1.15±0.10 (0.045±0.004)	F	0.6±0.3 (0.024±0.012)
1.9±0.20 (0.075±0.008)			N		
2.5±0.20 (0.098±0.008)			M		
□MJ325(1210)	3.2±0.30 (0.126±0.012)	2.5±0.20 (0.098±0.008)	1.9±0.20 (0.075±0.008)	N	0.6+0.4/-0.3 (0.024+0.016/-0.012)
2.5±0.20 (0.098±0.008)			M		
□MK432(1812)	4.5±0.40 (0.177±0.016)	3.2±0.30 (0.126±0.012)	2.5±0.20 (0.098±0.008)	M	0.9±0.6 (0.035±0.024)

Note : ※: LW reverse type, *1.Thickness code

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■ STANDARD QUANTITY

Type	EIA (inch)	Dimension		Standard quantity [pcs]	
		[mm]	Code	Paper tape	Embossed tape
063	0201	0.3	T	15000	—
105	0402	0.5	V	10000	—
	0204 ※	0.30	P		
107	0603	0.7	C	4000	—
		0.8	A		
		0.8	A	3000 (Soft Termination)	—
		0.8	A	—	3000 (Soft Termination)
	0306 ※	0.50	V	—	4000
212	0805	0.85	D	4000	—
		1.25	G	—	3000
		1.25	G	—	2000 (Soft Termination)
	0508 ※	0.85	D	4000	—
316	1206	1.15	F	—	3000
		1.6	L	—	2000
325	1210	1.15	F	—	2000
		1.9	N		
		2.5	M	—	500 (T), 1000 (P)
432	1812	2.5	M	—	500

Note : ※: LW Reverse type (□WK)

■ PART NUMBER

- All the Multilayer Ceramic Capacitors of the catalog lineup are RoHS compliant.
- Capacitance tolerance code is applied to □ of part number.
- All the Multilayer Ceramic Capacitors in the catalog lineup are applicable for reflow-soldering.

Note)

- The exchange of individual specifications is necessary depending on the application and circuit condition. Please contact Taiyo Yuden sales channels.
- *1: Automotive (AEC-Q200 Qualified) products
 < AEC-Q200 : AEC-Q200 qualified >
 All the Multilayer Ceramic Capacitors of *1 marks are tested based on the test conditions and methods defined in AEC-Q200 by family item.
 125°C products: AEC-Q200 Grade1 (we conduct the evaluation at the test condition of Grade1.)
 105°C products: AEC-Q200 Grade2 (we conduct the evaluation at the test condition of Grade2.)
 85°C products: AEC-Q200 Grade3 (we conduct the evaluation at the test condition of Grade3.)
 Please consult with TAIYO YUDEN's official sales channel for the details of the product specification and AEC-Q200 test results, etc., and please review and approve TAIYO YUDEN's product specification before ordering.
- *2: Industrial products and Medical products
- *3: For standard case size, please kindly refer to ④Dimension, ⑤Dimension tolerance, ⑨Thickness and STANDARD EXTERNAL DIMENSIONS.

Multilayer Ceramic Capacitors (High dielectric type)

● 105TYPE (Dimension:1.0×0.5mm JIS:1005 EIA:0402)

[Temperature Characteristic BJ : X5R] 0.5mm thickness(V)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HRTL		Thickness*3 [mm]	Note
							Rated voltage x %			
UMK105 BJ102□VHF		50	X5R	1000 p	±10, ±20	2.5	200	0.5±0.05	*1, *2	
UMK105 BJ152□VHF			X5R	1500 p	±10, ±20	2.5	200	0.5±0.05	*1, *2	
UMK105 BJ222□VHF			X5R	2200 p	±10, ±20	2.5	200	0.5±0.05	*1, *2	
UMK105 BJ332□VHF			X5R	3300 p	±10, ±20	2.5	200	0.5±0.05	*1, *2	
UMK105 BJ472□VHF			X5R	4700 p	±10, ±20	2.5	200	0.5±0.05	*1, *2	
UMK105 BJ682□VHF			X5R	6800 p	±10, ±20	2.5	150	0.5±0.05	*1, *2	
UMK105 BJ103□VHF			X5R	0.01 μ	±10, ±20	3.5	200	0.5±0.05	*1, *2	
UMK105 BJ223□VHF			X5R	0.022 μ	±10, ±20	5	200	0.5±0.05	*1, *2	
UMK105 BJ473□VHF			X5R	0.047 μ	±10, ±20	5	200	0.5±0.05	*1, *2	
UMK105 BJ104□VHF			X5R	0.1 μ	±10, ±20	10	150	0.5±0.05	*1, *2	
TMK105 BJ472□VHF			X5R	4700 p	±10, ±20	2.5	200	0.5±0.05	*1, *2	
TMK105 BJ682□VHF			X5R	6800 p	±10, ±20	2.5	200	0.5±0.05	*1, *2	
TMK105 BJ103□VHF			X5R	0.01 μ	±10, ±20	3.5	200	0.5±0.05	*1, *2	
TMK105 BJ223□VHF			X5R	0.022 μ	±10, ±20	3.5	200	0.5±0.05	*1, *2	
TMK105 BJ473□VHF			X5R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	*1, *2	
TMK105 BJ104□VHF			X5R	0.1 μ	±10, ±20	5	150	0.5±0.05	*1, *2	
TMK105 BJ224□VHF		X5R	0.22 μ	±10, ±20	10	150	0.5±0.05	*1, *2		
TMK105ABJ474□VHF		X5R	0.47 μ	±10, ±20	10	150	0.5±0.10	*1, *2		
EMK105 BJ103□VHF		16	X5R	0.01 μ	±10, ±20	3.5	200	0.5±0.05	*1, *2	
EMK105 BJ223□VHF			X5R	0.022 μ	±10, ±20	3.5	200	0.5±0.05	*1, *2	
EMK105 BJ473□VHF			X5R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	*1, *2	
EMK105 BJ104□VHF			X5R	0.1 μ	±10, ±20	5	150	0.5±0.05	*1, *2	
EMK105 BJ224□VHF			X5R	0.22 μ	±10, ±20	10	150	0.5±0.05	*1, *2	
EMK105ABJ474□VHF			X5R	0.47 μ	±10, ±20	10	150	0.5±0.10	*1, *2	
EMK105 BJ105□VHF			X5R	1 μ	±10, ±20	10	150	0.5±0.05	*1, *2	
LМК105 BJ473□VHF			X5R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	*1, *2	
LМК105 BJ104□VHF			X5R	0.1 μ	±10, ±20	5	150	0.5±0.05	*1, *2	
LМК105 BJ224□VHF			X5R	0.22 μ	±10, ±20	5	150	0.5±0.05	*1, *2	
LМК105ABJ474□VHF			X5R	0.47 μ	±10, ±20	10	150	0.5±0.10	*1, *2	
LМК105 BJ105□VHF			X5R	1 μ	±10, ±20	10	150	0.5±0.05	*1, *2	
LМК105ABJ225□VHF			X5R	2.2 μ	±10, ±20	10	150	0.5±0.10	*1, *2	
JMK105 BJ104□VHF			X5R	0.1 μ	±10, ±20	5	150	0.5±0.05	*1, *2	
JMK105 BJ224□VHF			X5R	0.22 μ	±10, ±20	5	150	0.5±0.05	*1, *2	
JMK105 BJ474□VHF			X5R	0.47 μ	±10, ±20	10	150	0.5±0.05	*1, *2	
JMK105 BJ105□VHF		X5R	1 μ	±10, ±20	10	150	0.5±0.05	*1, *2		
JMK105 BJ225□VHF		X5R	2.2 μ	±10, ±20	10	150	0.5±0.05	*1, *2		
JMK105BBJ475MVHF		X5R	4.7 μ	±20	10	150	0.5+0.15/-0.05	*1, *2		
AMK105 BJ225□VHF		4	X5R	2.2 μ	±10, ±20	10	150	0.5±0.05	*1, *2	
AMK105BBJ475MVHF			X5R	4.7 μ	±20	10	150	0.5+0.15/-0.05	*1, *2	
AMK105CBJ106MVHF			X5R	10 μ	±20	10	150	0.5+0.20/-0	*1, *2	
AMK105CBJ106MVHF			X5R	10 μ	±20	10	150	0.5+0.20/-0	*1, *2	

[Temperature Characteristic B7 : X7R] 0.5mm thickness(V)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HRTL		Thickness*3 [mm]	Note
							Rated voltage x %			
UMK105 B7102□VHF		50	X7R	1000 p	±10, ±20	2.5	200	0.5±0.05	*1, *2	
UMK105 B7152□VHF			X7R	1500 p	±10, ±20	2.5	200	0.5±0.05	*1, *2	
UMK105 B7222□VHF			X7R	2200 p	±10, ±20	2.5	200	0.5±0.05	*1, *2	
UMK105 B7332□VHF			X7R	3300 p	±10, ±20	2.5	200	0.5±0.05	*1, *2	
UMK105 B7472□VHF			X7R	4700 p	±10, ±20	2.5	150	0.5±0.05	*1, *2	
UMK105 B7682□VHF			X7R	6800 p	±10, ±20	2.5	150	0.5±0.05	*1, *2	
UMK105 B7103□VHF			X7R	0.01 μ	±10, ±20	3.5	150	0.5±0.05	*1, *2	
UMK105 B7223□VHF			X7R	0.022 μ	±10, ±20	10	200	0.5±0.05	*1, *2	
UMK105 B7473□VHF			X7R	0.047 μ	±10, ±20	10	200	0.5±0.05	*1, *2	
UMK105 B7104□VHF			X7R	0.1 μ	±10, ±20	10	150	0.5±0.05	*1, *2	
TMK105 B7472□VHF			X7R	4700 p	±10, ±20	2.5	200	0.5±0.05	*1, *2	
TMK105 B7682□VHF			X7R	6800 p	±10, ±20	2.5	200	0.5±0.05	*1, *2	
TMK105 B7103□VHF			X7R	0.01 μ	±10, ±20	3.5	200	0.5±0.05	*1, *2	
TMK105 B7223□VHF			X7R	0.022 μ	±10, ±20	3.5	150	0.5±0.05	*1, *2	
TMK105 B7473□VHF			X7R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	*1, *2	
TMK105 B7104□VHF			X7R	0.1 μ	±10, ±20	10	150	0.5±0.05	*1, *2	
EMK105 B7103□VHF		16	X7R	0.01 μ	±10, ±20	3.5	200	0.5±0.05	*1, *2	
EMK105 B7223□VHF			X7R	0.022 μ	±10, ±20	3.5	150	0.5±0.05	*1, *2	
EMK105 B7473□VHF			X7R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	*1, *2	
EMK105 B7104□VHF			X7R	0.1 μ	±10, ±20	5	150	0.5±0.05	*1, *2	
EMK105 B7224□VHF		X7R	0.22 μ	±10, ±20	10	150	0.5±0.05	*1, *2		

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■ PART NUMBER

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
LMK105 B7473□VHF		10	X7R	0.047 μ	±10, ±20	3.5	150	0.5±0.05	*1, *2	
LMK105 B7104□VHF			X7R	0.1 μ	±10, ±20	5	150	0.5±0.05	*1, *2	
LMK105 B7224□VHF			X7R	0.22 μ	±10, ±20	10	150	0.5±0.05	*1, *2	
JMK105 B7104□VHF		6.3	X7R	0.1 μ	±10, ±20	5	150	0.5±0.05	*1, *2	
JMK105 B7224□VHF			X7R	0.22 μ	±10, ±20	10	150	0.5±0.05	*1, *2	
JMK105 B7474□VHF			X7R	0.47 μ	±10, ±20	10	150	0.5±0.05	*1, *2	
AMK105 B7474□VHF		4	X7R	0.47 μ	±10, ±20	10	150	0.5±0.05	*1, *2	

● 107TYPE (Dimension:1.6×0.8mm JIS:1608 EIA:0603)

[Temperature Characteristic BJ : X5R] 0.8mm thickness (A)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
UMK107 BJ104□AHT		50	X5R	0.1 μ	±10, ±20	3.5	150	0.8±0.10	*1, *2	
UMK107 BJ224□AHT			X5R	0.22 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
UMK107 BJ474□AHT			X5R	0.47 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
UMK107ABJ105□AHT		35	X5R	1 μ	±10, ±20	10	150	0.8±0.15/-0.05	*1, *2	
GMK107 BJ223□AHT			X5R	0.022 μ	±10, ±20	2.5	200	0.8±0.10	*1, *2	
GMK107 BJ473□AHT			X5R	0.047 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
GMK107 BJ104□AHT		25	X5R	0.1 μ	±10, ±20	3.5	150	0.8±0.10	*1, *2	
GMK107 BJ224□AHT			X5R	0.22 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
GMK107 BJ474□AHT			X5R	0.47 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
GMK107ABJ474□AHT		16	X5R	0.47 μ	±10, ±20	10	150	0.8±0.15/-0.05	*1, *2	
GMK107 BJ105□AHT			X5R	1 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
TMK107 BJ223□AHT			X5R	0.022 μ	±10, ±20	2.5	200	0.8±0.10	*1, *2	
TMK107 BJ473□AHT		10	X5R	0.047 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
TMK107 BJ104□AHT			X5R	0.1 μ	±10, ±20	3.5	150	0.8±0.10	*1, *2	
TMK107 BJ224□AHT			X5R	0.22 μ	±10, ±20	5	150	0.8±0.10	*1, *2	
TMK107 BJ474□AHT		6.3	X5R	0.47 μ	±10, ±20	3.5	150	0.8±0.10	*1, *2	
TMK107 BJ105□AHT			X5R	1 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
TMK107BBJ225□AHT			X5R	2.2 μ	±10, ±20	10	150	0.8±0.20/-0	*1, *2	
EMK107 BJ104□AHT		16	X5R	0.1 μ	±10, ±20	3.5	150	0.8±0.10	*1, *2	
EMK107 BJ224□AHT			X5R	0.22 μ	±10, ±20	5	150	0.8±0.10	*1, *2	
EMK107 BJ474□AHT			X5R	0.47 μ	±10, ±20	3.5	150	0.8±0.10	*1, *2	
EMK107ABJ225□AHT		10	X5R	2.2 μ	±10, ±20	10	150	0.8±0.15/-0.05	*1, *2	
EMK107BBJ475□AHT			X5R	4.7 μ	±10, ±20	10	150	0.8±0.20/-0	*1, *2	
LMK107 BJ474□AHT			6.3	X5R	0.47 μ	±10, ±20	3.5	150	0.8±0.10	*1, *2
LMK107 BJ105□AHT		X5R		1 μ	±10, ±20	5	150	0.8±0.10	*1, *2	
LMK107 BJ225□AHT		X5R		2.2 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
LMK107 BJ475□AHT		4	X5R	4.7 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
LMK107BBJ106MAHT			X5R	10 μ	±10, ±20	10	150	0.8±0.20/-0	*1, *2	
JMK107 BJ105□AHT			X5R	1 μ	±10, ±20	5	150	0.8±0.10	*1, *2	
JMK107 BJ225□AHT		6.3	X5R	2.2 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
JMK107 BJ475□AHT			X5R	4.7 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
JMK107ABJ106□AHT			X5R	10 μ	±10, ±20	10	150	0.8±0.15/-0.05	*1, *2	
AMK107ABJ106□AHT		4	X5R	10 μ	±10, ±20	10	150	0.8±0.15/-0.05	*1, *2	
AMK107BBJ226MAHT			X5R	22 μ	±20	10	150	0.8±0.20/-0	*1, *2	

[Temperature Characteristic B7 : X7R , C7 : X7S , D7 : X7T] 0.8mm thickness (A)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
UMK107 B7102□AHT		50	X7R	1000 p	±10, ±20	3.5	200	0.8±0.10	*1, *2	
UMK107 B7152□AHT			X7R	1500 p	±10, ±20	3.5	200	0.8±0.10	*1, *2	
UMK107 B7222□AHT			X7R	2200 p	±10, ±20	3.5	200	0.8±0.10	*1, *2	
UMK107 B7332□AHT			X7R	3300 p	±10, ±20	3.5	200	0.8±0.10	*1, *2	
UMK107 B7472□AHT			X7R	4700 p	±10, ±20	3.5	200	0.8±0.10	*1, *2	
UMK107 B7682□AHT			X7R	6800 p	±10, ±20	3.5	200	0.8±0.10	*1, *2	
UMK107 B7103□AHT			X7R	0.01 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
UMK107 B7223□AHT			X7R	0.022 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
UMK107 B7473□AHT			X7R	0.047 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
UMK107 B7104□AHT			X7R	0.1 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
UMK107 C7224□AHT			X7S	0.22 μ	±10, ±20	3.5	150	0.8±0.10	*1, *2	
GMK107 B7473□AHT			35	X7R	0.047 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2
GMK107 B7104□AHT		X7R		0.1 μ	±10, ±20	3.5	150	0.8±0.10	*1, *2	
GMK107 B7224□AHT		X7R		0.22 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
GMK107 B7474□AHT		25	X7R	0.47 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
GMK107ABJ105□AHT			X7R	1 μ	±10, ±20	10	150	0.8±0.15/-0.05	*1, *2	
TMK107 B7223□AHT			X7R	0.022 μ	±10, ±20	2.5	200	0.8±0.10	*1, *2	
TMK107 B7473□AHT		16	X7R	0.047 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
TMK107 B7104□AHT			X7R	0.1 μ	±10, ±20	3.5	150	0.8±0.10	*1, *2	
TMK107 B7224□AHT			X7R	0.22 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
TMK107 B7474□AHT		10	X7R	0.47 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
TMK107ABJ105□AHT			X7R	1 μ	±10, ±20	10	150	0.8±0.15/-0.05	*1, *2	
EMK107 B7473□AHT			X7R	0.047 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
EMK107 B7104□AHT		6.3	X7R	0.1 μ	±10, ±20	3.5	150	0.8±0.10	*1, *2	
EMK107 B7224□AHT			X7R	0.22 μ	±10, ±20	5	150	0.8±0.10	*1, *2	
EMK107 B7474□AHT			X7R	0.47 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
EMK107 B7105□AHT		4	X7R	1 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
LMK107 B7224□AHT			X7R	0.22 μ	±10, ±20	5	150	0.8±0.10	*1, *2	
LMK107 B7474□AHT			X7R	0.47 μ	±10, ±20	3.5	150	0.8±0.10	*1, *2	
LMK107 B7105□AHT		6.3	X7R	1 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
LMK107BD7225□AHT			X7T	2.2 μ	±10, ±20	10	200	0.8±0.20/-0	*1, *2	
JMK107 B7105□AHT			X7R	1 μ	±10, ±20	10	150	0.8±0.10	*1, *2	
JMK107 B7225□AHT		4	X7R	2.2 μ	±10, ±20	10	150	0.8±0.10	*1, *2	

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■ PART NUMBER

● 212TYPE (Dimension:2.0×1.25mm JIS:2012 EIA:0805)

[Temperature Characteristic BJ : X5R] 1.25mm thickness (G)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness ^{※3} [mm]	Note
							Rated voltage x %			
UMK212 BJ104□GHT		50	X5R	0.1 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
UMK212 BJ224□GHT			X5R	0.22 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
UMK212 BJ474□GHT			X5R	0.47 μ	±10, ±20	3.5	150	1.25±0.10	*1, *2	
UMK212 BJ105□GHT		35	X5R	1 μ	±10, ±20	5	150	1.25±0.10	*1, *2	
GMK212 BJ104□GHT			X5R	0.1 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
GMK212 BJ224□GHT			X5R	0.22 μ	±10, ±20	3.5	150	1.25±0.10	*1, *2	
GMK212 BJ474□GHT		25	X5R	0.47 μ	±10, ±20	3.5	150	1.25±0.10	*1, *2	
GMK212 BJ105□GHT			X5R	1 μ	±10, ±20	5	150	1.25±0.10	*1, *2	
GMK212BBJ225□GHT			X5R	2.2 μ	±10, ±20	10	150	1.25±0.20/-0	*1, *2	
TMK212 BJ104□GHT		16	X5R	0.1 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
TMK212 BJ224□GHT			X5R	0.22 μ	±10, ±20	3.5	150	1.25±0.10	*1, *2	
TMK212 BJ474□GHT			X5R	0.47 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
TMK212 BJ105□GHT		10	X5R	1 μ	±10, ±20	3.5	150	1.25±0.10	*1, *2	
TMK212 BJ225□GHT			X5R	2.2 μ	±10, ±20	5	150	1.25±0.10	*1, *2	
TMK212BBJ475□GHT			X5R	4.7 μ	±10, ±20	10	150	1.25±0.20/-0	*1, *2	
TMK212BBJ106□GHT		6.3	X5R	10 μ	±10, ±20	10	150	1.25±0.20/-0	*1, *2	
EMK212 BJ105□GHT			X5R	1 μ	±10, ±20	3.5	150	1.25±0.10	*1, *2	
EMK212 BJ225□GHT			X5R	2.2 μ	±10, ±20	5	150	1.25±0.10	*1, *2	
EMK212ABJ475□GHT		4	X5R	4.7 μ	±10, ±20	10	150	1.25±0.15/-0.05	*1, *2	
EMK212BBJ106□GHT			X5R	10 μ	±10, ±20	10	150	1.25±0.20/-0	*1, *2	
EMK212BBJ225□GHT			X5R	2.2 μ	±10, ±20	5	200	1.25±0.10	*1, *2	
LМК212ABJ475□GHT		10	X5R	4.7 μ	±10, ±20	10	150	1.25±0.15/-0.05	*1, *2	
LМК212ABJ106□GHT			X5R	10 μ	±10, ±20	10	150	1.25±0.15/-0.05	*1, *2	
LМК212ABJ475□GHT			X5R	4.7 μ	±10, ±20	5	200	1.25±0.15/-0.05	*1, *2	
JMK212ABJ106□GHT		6.3	X5R	10 μ	±10, ±20	10	150	1.25±0.15/-0.05	*1, *2	
JMK212ABJ106□GHT			X5R	10 μ	±10, ±20	10	150	1.25±0.15/-0.05	*1, *2	
JMK212BBJ226MGHT			X5R	22 μ	±20	10	150	1.25±0.20/-0	*1, *2	
AMK212ABJ226MGHT		4	X5R	22 μ	±20	10	150	1.25±0.15/-0.05	*1, *2	
AMK212BBJ476MGHT			X5R	47 μ	±20	10	150	1.25±0.20/-0	*1, *2	

[Temperature Characteristic BJ : X5R] 0.85mm thickness (D)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness ^{※3} [mm]	Note
							Rated voltage x %			
EMK212 BJ105□DHT		16	X5R	1 μ	±10, ±20	5	200	0.85±0.10	*1, *2	
EMK212ABJ225□DHT			X5R	2.2 μ	±10, ±20	5	150	0.85±0.10	*1, *2	
EMK212BBJ475□DHT			X5R	4.7 μ	±10, ±20	10	150	0.85±0.10	*1, *2	

[Temperature Characteristic B7 : X7R] 1.25mm thickness (G)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness ^{※3} [mm]	Note
							Rated voltage x %			
UMK212 B7103□GHT		50	X7R	0.01 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
UMK212 B7223□GHT			X7R	0.022 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
UMK212 B7473□GHT			X7R	0.047 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
UMK212 B7104□GHT		35	X7R	0.1 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
UMK212 B7224□GHT			X7R	0.22 μ	±10, ±20	3.5	150	1.25±0.10	*1, *2	
UMK212 B7105□GHT			X7R	1 μ	±10, ±20	10	150	1.25±0.10	*1, *2	
GMK212 B7224□GHT		25	X7R	0.22 μ	±10, ±20	3.5	150	1.25±0.10	*1, *2	
GMK212 B7105□GHT			X7R	1 μ	±10, ±20	10	150	1.25±0.10	*1, *2	
GMK212 B7105□GHTR			X7R	1 μ	±10, ±20	10	150	1.25±0.10	*1, *2	
TMK212 B7224□GHT		16	X7R	0.22 μ	±10, ±20	3.5	150	1.25±0.10	*1, *2	
TMK212 B7474□GHT			X7R	0.47 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
TMK212 B7105□GHTR			X7R	1 μ	±10, ±20	10	150	1.25±0.10	*1, *2	
EMK212 B7224□GHT		10	X7R	0.22 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
EMK212 B7474□GHT			X7R	0.47 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
EMK212 B7105□GHTR			X7R	1 μ	±10, ±20	10	150	1.25±0.10	*1, *2	
EMK212 B7225□GHT		6.3	X7R	2.2 μ	±10, ±20	10	150	1.25±0.10	*1, *2	
EMK212 B7225□GHT			X7R	2.2 μ	±10, ±20	10	150	1.25±0.10	*1, *2	
EMK212AB7475□GHT			X7R	4.7 μ	±10, ±20	10	150	1.25±0.15/-0.05	*1, *2	
LМК212 B7105□GHTR		10	X7R	1 μ	±10, ±20	10	150	1.25±0.10	*1, *2	
LМК212 B7225□GHT			X7R	2.2 μ	±10, ±20	10	150	1.25±0.10	*1, *2	
LМК212 B7475□GHT			X7R	4.7 μ	±10, ±20	10	150	1.25±0.10	*1, *2	
JMK212 B7475□GHT		6.3	X7R	4.7 μ	±10, ±20	10	150	1.25±0.10	*1, *2	
JMK212AB7106□GHT			X7R	10 μ	±10, ±20	10	150	1.25±0.15/-0.05	*1, *2	

● 316TYPE (Dimension:3.2×1.6mm JIS:3216 EIA:1206)

[Temperature Characteristic BJ : X5R] 1.6mm thickness (L)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness ^{※3} [mm]	Note
							Rated voltage x %			
UMK316 BJ474□LHT		50	X5R	0.47 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
UMK316 BJ105□LHT			X5R	1 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
UMK316 BJ225□LHT			X5R	2.2 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
UMK316ABJ475□LHT		35	X5R	4.7 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
GMK316 BJ105□LHT			X5R	1 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
GMK316 BJ225□LHT			X5R	2.2 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
GMK316 BJ475□LHT		25	X5R	4.7 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
GMK316BBJ106□LHT			X5R	10 μ	±10, ±20	10	150	1.6±0.30	*1, *2	
TMK316 BJ225□LHT			X5R	2.2 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
TMK316 BJ475□LHT		16	X5R	4.7 μ	±10, ±20	5	150	1.6±0.20	*1, *2	
TMK316 BJ106□LHT			X5R	10 μ	±10, ±20	5	150	1.6±0.20	*1, *2	
EMK316 BJ225□LHT			X5R	2.2 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
EMK316 BJ475□LHT		10	X5R	4.7 μ	±10, ±20	5	150	1.6±0.20	*1, *2	
EMK316 BJ106□LHT			X5R	10 μ	±10, ±20	5	150	1.6±0.20	*1, *2	
EMK316BBJ226MLHT			X5R	22 μ	±20	10	150	1.6±0.30	*1, *2	
LМК316 BJ475□LHT		10	X5R	4.7 μ	±10, ±20	5	150	1.6±0.20	*1, *2	
LМК316 BJ106□LHT			X5R	10 μ	±10, ±20	5	150	1.6±0.20	*1, *2	
LМК316ABJ226□LHT		10	X5R	22 μ	±10, ±20	10	150	1.6±0.20	*1, *2	

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■ PART NUMBER

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
JMK316 BJ106□LHT		6.3	X5R	10 μ	±10, ±20	5	200	1.6±0.20	*1, *2	
JMK316ABJ226□LHT			X5R	22 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
JMK316ABJ476□LHT			X5R	47 μ	±20	10	150	1.6±0.20	*1, *2	
JMK316BBJ107MLHT			X5R	100 μ	±20	10	150	1.6±0.30	*2	
AMK316ABJ107MLHT		4	X5R	100 μ	±20	10	150	1.6±0.20	*2	

【Temperature Characteristic B7 : X7R, C7 : X7S】 1.6mm thickness (L)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
UMK316 B7473□LHT		50	X7R	0.047 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
UMK316 B7104□LHT			X7R	0.1 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
UMK316 B7224□LHT			X7R	0.22 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
UMK316 B7474□LHT			X7R	0.47 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
UMK316 B7105□LHT			X7R	1 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
UMK316 B7225□LHT			X7R	2.2 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
UMK316AC7475□LHTE			X7S	4.7 μ	±10, ±20	2.5	150	1.6±0.20	*1, *2	
GMK316 B7105□LHT			X7R	1 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
GMK316 B7225□LHT			X7R	2.2 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
GMK316AB7475□LHT			X7R	4.7 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
TMK316 B7105□LHT		25	X7R	1 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
TMK316 B7225□LHT			X7R	2.2 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
TMK316AB7475□LHT			X7R	4.7 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
TMK316AB7106□LHT			X7R	10 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
EMK316 B7225□LHT		16	X7R	2.2 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
EMK316AB7475□LHT			X7R	4.7 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
EMK316AB7106□LHT			X7R	10 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
LMK316 B7475□LHT		10	X7R	4.7 μ	±10, ±20	5	150	1.6±0.20	*1, *2	
LMK316AB7106□LHT			X7R	10 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
JMK316AB7106□LHT		6.3	X7R	10 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
JMK316AB7226□LHT			X7R	22 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
AMK316AB7226□LHT		4	X7R	22 μ	±10, ±20	10	150	1.6±0.20	*1, *2	
AMK316AC7476MLHT			X7S	47 μ	±20	10	150	1.6±0.20	*1, *2	

● 325TYPE (Dimension:3.2×2.5mm JIS:3225 EIA:1210)

【Temperature Characteristic BJ : X5R】 2.5mm thickness (M)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
UMK325 BJ106□MHP		50	X5R	10 μ	±10, ±20	5	150	2.5±0.20	*1, *2	
GMK325 BJ106□MHP		35	X5R	10 μ	±10, ±20	5	150	2.5±0.20	*1, *2	
TMK325 BJ106□MHP		25	X5R	10 μ	±10, ±20	5	150	2.5±0.20	*1, *2	
EMK325 BJ226□MHP		16	X5R	22 μ	±10, ±20	5	150	2.5±0.20	*1, *2	
EMK325ABJ476□MHP			X5R	47 μ	±10, ±20	10	150	2.5±0.30	*1, *2	
LMK325 BJ226□MHP		10	X5R	22 μ	±10, ±20	5	150	2.5±0.20	*1, *2	
LMK325 BJ476□MHP			X5R	47 μ	±10, ±20	10	150	2.5±0.20	*1, *2	
LMK325ABJ107MMHP			X5R	100 μ	±20	10	150	2.5±0.30	*2	
JMK325 BJ476□MHP			X5R	47 μ	±10, ±20	10	150	2.5±0.20	*1, *2	
JMK325ABJ107MMHP		6.3	X5R	100 μ	±20	10	150	2.5±0.30	*2	
AMK325ABJ107MMHP			X5R	100 μ	±20	10	150	2.5±0.30	*2	
AMK325ABJ227MMHP		4	X5R	220 μ	±20	10	150	2.5±0.30	*2	

【Temperature Characteristic BJ : X5R】 1.9mm thickness (N)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
UMK325 BJ475□NHHT		50	X5R	4.7 μ	±10, ±20	10	150	1.9±0.20	*1, *2	
GMK325 BJ225MNHT		35	X5R	2.2 μ	±20	3.5	200	1.9±0.20	*1, *2	
GMK325 BJ475□NHHT			X5R	4.7 μ	±10, ±20	10	150	1.9±0.20	*1, *2	
TMK325 BJ475□NHHT		25	X5R	4.7 μ	±10, ±20	10	150	1.9±0.20	*1, *2	
EMK325 BJ475MNHT		16	X5R	4.7 μ	±10, ±20	3.5	200	1.9±0.20	*1, *2	
EMK325 BJ106□NHHT			X5R	10 μ	±10, ±20	5	150	1.9±0.20	*1, *2	

【Temperature Characteristic C6 : X6S】 2.5mm thickness (M)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
JMK325AC6107MMHP		6.3	X6S	100 μ	±20	10	150	2.5±0.30	*2	

【Temperature Characteristic B7 : X7R】 2.5mm thickness (M)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
UMK325 B7475□MHP		50	X7R	4.7 μ	±10, ±20	5	150	2.5±0.20	*1, *2	
UMK325AB7106□MHP			X7R	10 μ	±10, ±20	10	150	2.5±0.30	*1, *2	
GMK325AB7106□MHP		35	X7R	10 μ	±10, ±20	10	150	2.5±0.30	*1, *2	
TMK325AB7106□MHPR			X7R	10 μ	±10, ±20	10	150	2.5±0.30	*1, *2	
TMK325 B7226□MHP		25	X7R	22 μ	±10, ±20	10	150	2.5±0.20	*1, *2	
EMK325 B7226□MHP			X7R	22 μ	±10, ±20	10	150	2.5±0.20	*1, *2	
LMK325 B7226□MHP		10	X7R	22 μ	±10, ±20	10	150	2.5±0.20	*1, *2	
JMK325 B7226□MHPR			X7R	22 μ	±10, ±20	10	150	2.5±0.20	*1, *2	
JMK325 B7476□MHPR		6.3	X7R	47 μ	±10, ±20	10	150	2.5±0.20	*1, *2	

【Temperature Characteristic B7 : X7R】 1.9mm thickness (N)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
GMK325 B7225□NHHT		35	X7R	2.2 μ	±10, ±20	3.5	200	1.9±0.20	*1, *2	
GMK325 B7475□NHTR			X7R	4.7 μ	±10, ±20	10	150	1.9±0.20	*1, *2	
TMK325 B7475□NHHT		25	X7R	4.7 μ	±10, ±20	10	150	1.9±0.20	*1, *2	
EMK325 B7475□NHHT			X7R	4.7 μ	±10, ±20	3.5	150	1.9±0.20	*1, *2	
EMK325 B7106□NHTR		16	X7R	10 μ	±10, ±20	10	150	1.9±0.20	*1, *2	

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■ PART NUMBER

Multilayer Ceramic Capacitors (Temperature compensating type)

● **063TYPE (Dimension:0.6 × 0.3mm JIS:0603 EIA:0201)**

[Temperature Characteristic CG : CG/COG] 0.3mm thickness(T)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q [at 1MHz] (Min)	HTLT		Thickness ^{*3} [mm]	Note
								Rated voltage x %			
UMK063 CG0R5CTHF		50	CG	COG	0.5 p	±0.25pF	410	200		0.3±0.03	*1, *2
UMK063 CG010CTHF			CG	COG	1 p	±0.25pF	420	200		0.3±0.03	*1, *2
UMK063 CG1R5CTHF			CG	COG	1.5 p	±0.25pF	430	200		0.3±0.03	*1, *2
UMK063 CG020CTHF			CG	COG	2 p	±0.25pF	440	200		0.3±0.03	*1, *2
UMK063 CG030CTHF			CG	COG	3 p	±0.25pF	460	200		0.3±0.03	*1, *2
UMK063 CG040CTHF			CG	COG	4 p	±0.25pF	480	200		0.3±0.03	*1, *2
UMK063 CG050CTHF			CG	COG	5 p	±0.25pF	500	200		0.3±0.03	*1, *2
UMK063 CG060DTHF			CG	COG	6 p	±0.5pF	520	200		0.3±0.03	*1, *2
UMK063 CG070DTHF			CG	COG	7 p	±0.5pF	540	200		0.3±0.03	*1, *2
UMK063 CG080DTHF			CG	COG	8 p	±0.5pF	560	200		0.3±0.03	*1, *2
UMK063 CG090DTHF			CG	COG	9 p	±0.5pF	580	200		0.3±0.03	*1, *2
UMK063 CG100DTHF			CG	COG	10 p	±0.5pF	600	200		0.3±0.03	*1, *2
UMK063 CG120JTHF			CG	COG	12 p	±5%	640	200		0.3±0.03	*1, *2
UMK063 CG150JTHF			CG	COG	15 p	±5%	700	200		0.3±0.03	*1, *2
UMK063 CG180JTHF			CG	COG	18 p	±5%	760	200		0.3±0.03	*1, *2
UMK063 CG220JTHF			CG	COG	22 p	±5%	840	200		0.3±0.03	*1, *2
UMK063 CG270JTHF			CG	COG	27 p	±5%	940	200		0.3±0.03	*1, *2
UMK063 CG330JTHF			CG	COG	33 p	±5%	1000	200		0.3±0.03	*1, *2
UMK063 CG390JTHF			CG	COG	39 p	±5%	1000	200		0.3±0.03	*1, *2
UMK063 CG470JTHF			CG	COG	47 p	±5%	1000	200		0.3±0.03	*1, *2
UMK063 CG560JTHF			CG	COG	56 p	±5%	1000	200		0.3±0.03	*1, *2
UMK063 CG680JTHF			CG	COG	68 p	±5%	1000	200		0.3±0.03	*1, *2
UMK063 CG820JTHF			CG	COG	82 p	±5%	1000	200		0.3±0.03	*1, *2
UMK063 CG101JTHF			CG	COG	100 p	±5%	1000	200		0.3±0.03	*1, *2
TMK063 CG121JTHF			25	CG	COG	120 p	±5%	1000	200		0.3±0.03
TMK063 CG151JTHF		CG		COG	150 p	±5%	1000	200		0.3±0.03	*1, *2
TMK063 CG181JTHF		CG		COG	180 p	±5%	1000	200		0.3±0.03	*1, *2
TMK063 CG221JTHF		CG		COG	220 p	±5%	1000	200		0.3±0.03	*1, *2

● **105TYPE (Dimension:1.0 × 0.5mm JIS:1005 EIA:0402)**

[Temperature Characteristic CG : CG/COG] 0.5mm thickness(V)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q [at 1MHz] (Min)	HTLT		Thickness ^{*3} [mm]	Note
								Rated voltage x %			
UMK105 CG0R5CVHF		50	CG	COG	0.5 p	±0.25pF	410	200		0.5±0.05	*1, *2
UMK105 CG010CVHF			CG	COG	1 p	±0.25pF	420	200		0.5±0.05	*1, *2
UMK105 CG1R5CVHF			CG	COG	1.5 p	±0.25pF	430	200		0.5±0.05	*1, *2
UMK105 CG020CVHF			CG	COG	2 p	±0.25pF	440	200		0.5±0.05	*1, *2
UMK105 CG030CVHF			CG	COG	3 p	±0.25pF	460	200		0.5±0.05	*1, *2
UMK105 CG040CVHF			CG	COG	4 p	±0.25pF	480	200		0.5±0.05	*1, *2
UMK105 CG050CVHF			CG	COG	5 p	±0.25pF	500	200		0.5±0.05	*1, *2
UMK105 CG060DVHF			CG	COG	6 p	±0.5pF	520	200		0.5±0.05	*1, *2
UMK105 CG070DVHF			CG	COG	7 p	±0.5pF	540	200		0.5±0.05	*1, *2
UMK105 CG080DVHF			CG	COG	8 p	±0.5pF	560	200		0.5±0.05	*1, *2
UMK105 CG090DVHF			CG	COG	9 p	±0.5pF	580	200		0.5±0.05	*1, *2
UMK105 CG100DVHF			CG	COG	10 p	±0.5pF	600	200		0.5±0.05	*1, *2
UMK105 CG120JVHF			CG	COG	12 p	±5%	640	200		0.5±0.05	*1, *2
UMK105 CG150JVHF			CG	COG	15 p	±5%	700	200		0.5±0.05	*1, *2
UMK105 CG180JVHF			CG	COG	18 p	±5%	760	200		0.5±0.05	*1, *2
UMK105 CG220JVHF			CG	COG	22 p	±5%	840	200		0.5±0.05	*1, *2
UMK105 CG270JVHF			CG	COG	27 p	±5%	940	200		0.5±0.05	*1, *2
UMK105 CG330JVHF			CG	COG	33 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG390JVHF			CG	COG	39 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG470JVHF			CG	COG	47 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG560JVHF			CG	COG	56 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG680JVHF			CG	COG	68 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG820JVHF			CG	COG	82 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG101JVHF			CG	COG	100 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG121JVHF			CG	COG	120 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG151JVHF			CG	COG	150 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG181JVHF			CG	COG	180 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG221JVHF			CG	COG	220 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG271JVHF			CG	COG	270 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG331JVHF			CG	COG	330 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG391JVHF			CG	COG	390 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG471JVHF			CG	COG	470 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG561JVHF			CG	COG	560 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG681JVHF			CG	COG	680 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG821JVHF			CG	COG	820 p	±5%	1000	200		0.5±0.05	*1, *2
UMK105 CG102JVHF		CG	COG	1000 p	±5%	1000	200		0.5±0.05	*1, *2	

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■ PART NUMBER

Medium-High Voltage Multilayer Ceramic Capacitors

● **107TYPE (Dimension:1.6 × 0.8mm JIS:1608 EIA:0603)**

[Temperature Characteristic B7 : X7R , C7 : X7S] 0.8mm thickness (A)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
HMK107 B7102□AHT		100	X7R	1000 p	±10, ±20	3.5	200	0.8±0.10	*1, *2	
HMK107 B7152□AHT			X7R	1500 p	±10, ±20	3.5	200	0.8±0.10	*1, *2	
HMK107 B7222□AHT			X7R	2200 p	±10, ±20	3.5	200	0.8±0.10	*1, *2	
HMK107 B7332□AHT			X7R	3300 p	±10, ±20	3.5	200	0.8±0.10	*1, *2	
HMK107 B7472□AHT			X7R	4700 p	±10, ±20	3.5	200	0.8±0.10	*1, *2	
HMK107 B7682□AHT			X7R	6800 p	±10, ±20	3.5	200	0.8±0.10	*1, *2	
HMK107 B7103□AHT			X7R	0.01 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
HMK107 B7153□AHT			X7R	0.015 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
HMK107 B7223□AHT			X7R	0.022 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
HMK107 B7333□AHT			X7R	0.033 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
HMK107 B7473□AHT			X7R	0.047 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
HMK107 B7104□AHT			X7R	0.1 μ	±10, ±20	3.5	200	0.8±0.10	*1, *2	
HMK107 C7224□AHT			X7S	0.22 μ	±10, ±20	3.5	150	0.8±0.10	*1, *2	

● **212TYPE (Dimension:2.0 × 1.25mm JIS:2012 EIA:0805)**

[Temperature Characteristic B7 : X7R , C7 : X7S] 1.25mm thickness (G)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
HMK212 B7103□GHT		100	X7R	0.01 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
HMK212 B7153□GHT			X7R	0.015 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
HMK212 B7223□GHT			X7R	0.022 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
HMK212 B7333□GHT			X7R	0.033 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
HMK212 B7473□GHT			X7R	0.047 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
HMK212 B7683□GHT			X7R	0.068 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
HMK212 B7104□GHT			X7R	0.1 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
HMK212 B7224□GHT			X7R	0.22 μ	±10, ±20	3.5	200	1.25±0.10	*1, *2	
HMK212 C7474□GHTE			X7S	0.47 μ	±10, ±20	3.5	150	1.25±0.10	*1, *2	
HMK212BC7105□GHTE			X7S	1 μ	±10, ±20	3.5	150	1.25+0.20/-0	*1, *2	
QMK212 B7472□GHT			250	X7R	4700 p	±10, ±20	2.5	150	1.25±0.10	*1, *2
QMK212 B7682□GHT				X7R	6800 p	±10, ±20	2.5	150	1.25±0.10	*1, *2
QMK212 B7103□GHT		X7R		0.01 μ	±10, ±20	2.5	150	1.25±0.10	*1, *2	
QMK212 B7153□GHT		X7R		0.015 μ	±10, ±20	2.5	150	1.25±0.10	*1, *2	
QMK212 B7223□GHT		X7R	0.022 μ	±10, ±20	2.5	150	1.25±0.10	*1, *2		

[Temperature Characteristic B7 : X7R] 0.85mm thickness (D)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
QMK212 B7102□DHT		250	X7R	1000 p	±10, ±20	2.5	150	0.85±0.10	*1, *2	
QMK212 B7152□DHT			X7R	1500 p	±10, ±20	2.5	150	0.85±0.10	*1, *2	
QMK212 B7222□DHT			X7R	2200 p	±10, ±20	2.5	150	0.85±0.10	*1, *2	
QMK212 B7332□DHT			X7R	3300 p	±10, ±20	2.5	150	0.85±0.10	*1, *2	

● **316TYPE (Dimension:3.2 × 1.6mm JIS:3216 EIA:1206)**

[Temperature Characteristic B7 : X7R , C7 : X7S] 1.6mm thickness (L)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
HMK316 B7473□LHT		100	X7R	0.047 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
HMK316 B7104□LHT			X7R	0.1 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
HMK316 B7154□LHT			X7R	0.15 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
HMK316 B7224□LHT			X7R	0.22 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
HMK316 B7334□LHT			X7R	0.33 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
HMK316 B7474□LHT			X7R	0.47 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
HMK316 B7105□LHT			X7R	1 μ	±10, ±20	3.5	200	1.6±0.20	*1, *2	
HMK316AC7225□LHTE			X7S	2.2 μ	±10, ±20	3.5	150	1.6±0.20	*1, *2	
QMK316 B7333□LHT			250	X7R	0.033 μ	±10, ±20	2.5	150	1.6±0.20	*1, *2
QMK316 B7473□LHT				X7R	0.047 μ	±10, ±20	2.5	150	1.6±0.20	*1, *2
QMK316 B7683□LHT				X7R	0.068 μ	±10, ±20	2.5	150	1.6±0.20	*1, *2
QMK316 B7104□LHT				X7R	0.1 μ	±10, ±20	2.5	150	1.6±0.20	*1, *2
SMK316 B7153□LHT		630	X7R	0.015 μ	±10, ±20	2.5	120	1.6±0.20	*1, *2	
SMK316 B7223□LHT			X7R	0.022 μ	±10, ±20	2.5	120	1.6±0.20	*1, *2	

[Temperature Characteristic B7 : X7R] 1.15mm thickness (F)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
SMK316 B7102□FHT		630	X7R	1000 p	±10, ±20	2.5	120	1.15±0.10	*1, *2	
SMK316 B7152□FHT			X7R	1500 p	±10, ±20	2.5	120	1.15±0.10	*1, *2	
SMK316 B7222□FHT			X7R	2200 p	±10, ±20	2.5	120	1.15±0.10	*1, *2	
SMK316 B7332□FHT			X7R	3300 p	±10, ±20	2.5	120	1.15±0.10	*1, *2	
SMK316 B7472□FHT			X7R	4700 p	±10, ±20	2.5	120	1.15±0.10	*1, *2	
SMK316 B7682□FHT			X7R	6800 p	±10, ±20	2.5	120	1.15±0.10	*1, *2	
SMK316 B7103□FHT			X7R	0.01 μ	±10, ±20	2.5	120	1.15±0.10	*1, *2	

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PART NUMBER

● 325TYPE (Dimension:3.2 × 2.5mm JIS:3225 EIA:1210)

[Temperature Characteristic B7 : X7R , C7 : X7S] 2.5mm thickness (M)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
HMK325 B7225[MHP]		100	X7R	2.2 μ	±10, ±20	3.5	200	2.5±0.20	*1, *2
HMK325 C7475[MHPE]			X7S	4.7 μ	±10, ±20	3.5	150	2.5±0.20	*1, *2

[Temperature Characteristic B7 : X7R] 1.9mm thickness (N)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
HMK325 B7224[NHT]		100	X7R	0.22 μ	±10, ±20	3.5	200	1.9±0.20	*1, *2
HMK325 B7474[NHT]			X7R	0.47 μ	±10, ±20	3.5	200	1.9±0.20	*1, *2
HMK325 B7684[NHT]			X7R	0.68 μ	±10, ±20	3.5	200	1.9±0.20	*1, *2
HMK325 B7105[NHT]		250	X7R	1 μ	±10, ±20	3.5	200	1.9±0.20	*1, *2
QMK325 B7473[NHT]			X7R	0.047 μ	±10, ±20	2.5	150	1.9±0.20	*1, *2
QMK325 B7104[NHT]			X7R	0.1 μ	±10, ±20	2.5	150	1.9±0.20	*1, *2
QMK325 B7154[NHT]			X7R	0.15 μ	±10, ±20	2.5	150	1.9±0.20	*1, *2
QMK325 B7224[NHT]			X7R	0.22 μ	±10, ±20	2.5	150	1.9±0.20	*1, *2
SMK325 B7223[NHT]			X7R	0.022 μ	±10, ±20	2.5	120	1.9±0.20	*1, *2
SMK325 B7333[NHT]		630	X7R	0.033 μ	±10, ±20	2.5	120	1.9±0.20	*1, *2
SMK325 B7473[NHT]			X7R	0.047 μ	±10, ±20	2.5	120	1.9±0.20	*1, *2

[Temperature Characteristic B7 : X7R] 1.15mm thickness (F)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
HMK325 B7104[FHT]		100	X7R	0.1 μ	±10, ±20	3.5	200	1.15±0.10	*1, *2

● 432TYPE (Dimension:4.5 × 3.2mm JIS:4532 EIA:1812)

[Temperature Characteristic B7 : X7R] 2.5mm thickness (M)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT	Thickness*3 [mm]	Note
							Rated voltage x %		
HMK432 B7474[MHT]		100	X7R	0.47 μ	±10, ±20	3.5	200	2.5±0.20	*1, *2
HMK432 B7105[MHT]			X7R	1 μ	±10, ±20	3.5	200	2.5±0.20	*1, *2
HMK432 B7155[MHT]			X7R	1.5 μ	±10, ±20	3.5	200	2.5±0.20	*1, *2
HMK432 B7225[MHT]		250	X7R	2.2 μ	±10, ±20	3.5	200	2.5±0.20	*1, *2
QMK432 B7104[MHT]			X7R	0.1 μ	±10, ±20	2.5	150	2.5±0.20	*1, *2
QMK432 B7224[MHT]			X7R	0.22 μ	±10, ±20	2.5	150	2.5±0.20	*1, *2
QMK432 B7334[MHT]			X7R	0.33 μ	±10, ±20	2.5	150	2.5±0.20	*1, *2
QMK432 B7474[MHT]			X7R	0.47 μ	±10, ±20	2.5	150	2.5±0.20	*1, *2
SMK432 B7473[MHT]			X7R	0.047 μ	±10, ±20	2.5	120	2.5±0.20	*1, *2
SMK432 B7683[MHT]		630	X7R	0.068 μ	±10, ±20	2.5	120	2.5±0.20	*1, *2
SMK432 B7104[MHT]			X7R	0.1 μ	±10, ±20	2.5	120	2.5±0.20	*1, *2

■ PART NUMBER

Medium-High Voltage Multilayer Ceramic Capacitors for High Frequency Applications

● **107TYPE (Dimension:1.6 × 0.8mm JIS:1608 EIA:0603)**

[Temperature Characteristic CG : CG/C0G] 0.7mm thickness (C)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q [at 1MHz] (Min)	HTLT	Thickness*3 [mm]	Note
								Rated voltage x %		
QVS107 CG0R5[C]HT		250	CG	C0G	0.5 p	±0.1pF, ±0.25pF	810	200	0.7±0.10	*2
QVS107 CG0R6[C]HT			CG	C0G	0.6 p	±0.1pF, ±0.25pF	812	200	0.7±0.10	*2
QVS107 CG0R7[C]HT			CG	C0G	0.7 p	±0.1pF, ±0.25pF	814	200	0.7±0.10	*2
QVS107 CGR75[C]HT			CG	C0G	0.75 p	±0.1pF, ±0.25pF	815	200	0.7±0.10	*2
QVS107 CG0R8[C]HT			CG	C0G	0.8 p	±0.1pF, ±0.25pF	816	200	0.7±0.10	*2
QVS107 CG0R9[C]HT			CG	C0G	0.9 p	±0.1pF, ±0.25pF	818	200	0.7±0.10	*2
QVS107 CG010[C]HT			CG	C0G	1 p	±0.1pF, ±0.25pF	820	200	0.7±0.10	*2
QVS107 CG1R1[C]HT			CG	C0G	1.1 p	±0.1pF, ±0.25pF	822	200	0.7±0.10	*2
QVS107 CG1R2[C]HT			CG	C0G	1.2 p	±0.1pF, ±0.25pF	824	200	0.7±0.10	*2
QVS107 CG1R3[C]HT			CG	C0G	1.3 p	±0.1pF, ±0.25pF	826	200	0.7±0.10	*2
QVS107 CG1R5[C]HT			CG	C0G	1.5 p	±0.1pF, ±0.25pF	830	200	0.7±0.10	*2
QVS107 CG1R6[C]HT			CG	C0G	1.6 p	±0.1pF, ±0.25pF	832	200	0.7±0.10	*2
QVS107 CG1R8[C]HT			CG	C0G	1.8 p	±0.1pF, ±0.25pF	836	200	0.7±0.10	*2
QVS107 CG020[C]HT			CG	C0G	2 p	±0.1pF, ±0.25pF	840	200	0.7±0.10	*2
QVS107 CG2R2[C]HT			CG	C0G	2.2 p	±0.1pF, ±0.25pF	844	200	0.7±0.10	*2
QVS107 CG2R4[C]HT			CG	C0G	2.4 p	±0.1pF, ±0.25pF	848	200	0.7±0.10	*2
QVS107 CG2R7[C]HT			CG	C0G	2.7 p	±0.1pF, ±0.25pF	854	200	0.7±0.10	*2
QVS107 CG030[C]HT			CG	C0G	3 p	±0.1pF, ±0.25pF	860	200	0.7±0.10	*2
QVS107 CG3R3[C]HT			CG	C0G	3.3 p	±0.1pF, ±0.25pF	866	200	0.7±0.10	*2
QVS107 CG3R6[C]HT			CG	C0G	3.6 p	±0.1pF, ±0.25pF	872	200	0.7±0.10	*2
QVS107 CG3R9[C]HT			CG	C0G	3.9 p	±0.1pF, ±0.25pF	878	200	0.7±0.10	*2
QVS107 CG4R3[C]HT			CG	C0G	4.3 p	±0.1pF, ±0.25pF	886	200	0.7±0.10	*2
QVS107 CG4R7[C]HT			CG	C0G	4.7 p	±0.1pF, ±0.25pF	894	200	0.7±0.10	*2
QVS107 CG5R1[C]HT			CG	C0G	5.1 p	±0.25pF, ±0.5pF	902	200	0.7±0.10	*2
QVS107 CG5R6[C]HT			CG	C0G	5.6 p	±0.25pF, ±0.5pF	912	200	0.7±0.10	*2
QVS107 CG6R2[C]HT			CG	C0G	6.2 p	±0.25pF, ±0.5pF	924	200	0.7±0.10	*2
QVS107 CG6R8[C]HT			CG	C0G	6.8 p	±0.25pF, ±0.5pF	936	200	0.7±0.10	*2
QVS107 CG7R5[C]HT			CG	C0G	7.5 p	±0.25pF, ±0.5pF	950	200	0.7±0.10	*2
QVS107 CG8R2[C]HT			CG	C0G	8.2 p	±0.25pF, ±0.5pF	964	200	0.7±0.10	*2
QVS107 CG100[C]HT			CG	C0G	10 p	±2%, ±5%	1000	200	0.7±0.10	*2
QVS107 CG110JCHT			CG	C0G	11 p	±5%	1020	200	0.7±0.10	*2
QVS107 CG120JCHT			CG	C0G	12 p	±5%	1040	200	0.7±0.10	*2
QVS107 CG130JCHT			CG	C0G	13 p	±5%	1060	200	0.7±0.10	*2
QVS107 CG150JCHT			CG	C0G	15 p	±5%	1100	200	0.7±0.10	*2
QVS107 CG160JCHT			CG	C0G	16 p	±5%	1120	200	0.7±0.10	*2
QVS107 CG180JCHT			CG	C0G	18 p	±5%	1160	200	0.7±0.10	*2
QVS107 CG200JCHT			CG	C0G	20 p	±5%	1200	200	0.7±0.10	*2
QVS107 CG220JCHT			CG	C0G	22 p	±5%	1240	200	0.7±0.10	*2
QVS107 CG240JCHT			CG	C0G	24 p	±5%	1280	200	0.7±0.10	*2
QVS107 CG270JCHT			CG	C0G	27 p	±5%	1340	200	0.7±0.10	*2
QVS107 CG300JCHT			CG	C0G	30 p	±5%	1400	200	0.7±0.10	*2
QVS107 CG330JCHT			CG	C0G	33 p	±5%	1400	200	0.7±0.10	*2
QVS107 CG360JCHT			CG	C0G	36 p	±5%	1400	200	0.7±0.10	*2
QVS107 CG390JCHT			CG	C0G	39 p	±5%	1400	200	0.7±0.10	*2
QVS107 CG430JCHT			CG	C0G	43 p	±5%	1400	200	0.7±0.10	*2
QVS107 CG470JCHT			CG	C0G	47 p	±5%	1400	200	0.7±0.10	*2
QVS107 CG510JCHT			CG	C0G	51 p	±5%	1400	200	0.7±0.10	*2
QVS107 CG560JCHT			CG	C0G	56 p	±5%	1400	200	0.7±0.10	*2
QVS107 CG620JCHT			CG	C0G	62 p	±5%	1400	200	0.7±0.10	*2
QVS107 CG680JCHT			CG	C0G	68 p	±5%	1400	200	0.7±0.10	*2
QVS107 CG750JCHT		CG	C0G	75 p	±5%	1400	200	0.7±0.10	*2	
QVS107 CG820JCHT		CG	C0G	82 p	±5%	1400	200	0.7±0.10	*2	
QVS107 CG910JCHT		CG	C0G	91 p	±5%	1400	200	0.7±0.10	*2	
QVS107 CG101JCHT		CG	C0G	100 p	±5%	1400	200	0.7±0.10	*2	

● **212TYPE (Dimension:2.0 × 1.25mm JIS:2012 EIA:0805)**

[Temperature Characteristic CG : CG/C0G] 0.85mm thickness (D)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics		Capacitance [F]	Capacitance tolerance	Q [at 1MHz] (Min)	HTLT	Thickness*3 [mm]	Note
								Rated voltage x %		
QVS212 CG0R5[D]HT		250	CG	C0G	0.5 p	±0.1pF, ±0.25pF	810	200	0.85±0.10	*2
QVS212 CG0R6[D]HT			CG	C0G	0.6 p	±0.1pF, ±0.25pF	812	200	0.85±0.10	*2
QVS212 CG0R7[D]HT			CG	C0G	0.7 p	±0.1pF, ±0.25pF	814	200	0.85±0.10	*2
QVS212 CG0R9[D]HT			CG	C0G	0.9 p	±0.1pF, ±0.25pF	818	200	0.85±0.10	*2
QVS212 CG2R2[D]HT			CG	C0G	2.2 p	±0.1pF, ±0.25pF	844	200	0.85±0.10	*2
QVS212 CG2R7[D]HT			CG	C0G	2.7 p	±0.1pF, ±0.25pF	854	200	0.85±0.10	*2
QVS212 CG3R3[D]HT			CG	C0G	3.3 p	±0.1pF, ±0.25pF	866	200	0.85±0.10	*2
QVS212 CG4R7[D]HT			CG	C0G	4.7 p	±0.1pF, ±0.25pF	894	200	0.85±0.10	*2
QVS212 CG6R2[D]HT			CG	C0G	6.2 p	±0.25pF, ±0.5pF	924	200	0.85±0.10	*2
QVS212 CG8R2[D]HT			CG	C0G	8.2 p	±0.25pF, ±0.5pF	964	200	0.85±0.10	*2
QVS212 CG9R1[D]HT			CG	C0G	9.1 p	±0.25pF, ±0.5pF	982	200	0.85±0.10	*2
QVS212 CG100JDHT			CG	C0G	10 p	±5%	1000	200	0.85±0.10	*2
QVS212 CG150JDHT			CG	C0G	15 p	±5%	1100	200	0.85±0.10	*2
QVS212 CG180JDHT			CG	C0G	18 p	±5%	1160	200	0.85±0.10	*2
QVS212 CG220JDHT			CG	C0G	22 p	±5%	1240	200	0.85±0.10	*2
QVS212 CG270JDHT			CG	C0G	27 p	±5%	1340	200	0.85±0.10	*2
QVS212 CG300JDHT			CG	C0G	30 p	±5%	1400	200	0.85±0.10	*2
QVS212 CG330JDHT			CG	C0G	33 p	±5%	1400	200	0.85±0.10	*2
QVS212 CG390JDHT			CG	C0G	39 p	±5%	1400	200	0.85±0.10	*2
QVS212 CG470JDHT			CG	C0G	47 p	±5%	1400	200	0.85±0.10	*2
QVS212 CG560JDHT			CG	C0G	56 p	±5%	1400	200	0.85±0.10	*2
QVS212 CG620JDHT			CG	C0G	62 p	±5%	1400	200	0.85±0.10	*2
QVS212 CG101JDHT			CG	C0G	100 p	±5%	1400	200	0.85±0.10	*2

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■ PART NUMBER

Soft Termination Multilayer Ceramic Capacitors

● **107TYPE (Dimension:1.6×0.8mm JIS:1608 EIA:0603)**

[Temperature Characteristic B7 : X7R] 0.8mm thickness (A)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note	
							Rated voltage x %				
TMJ107BB7473□AHT		25	X7R	0.047 μ	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	
TMJ107BB7104□AHT			X7R	0.1 μ	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	
TMJ107BB7224□AHT			X7R	0.22 μ	±10, ±20	10	150		0.8±0.20/-0	*1, *2	
TMJ107BB7474□AHT			X7R	0.47 μ	±10, ±20	10	150		0.8±0.20/-0	*1, *2	
TMJ107CB7105□AHR			X7R	1 μ	±10, ±20	10	150		0.8±0.25/-0	*1, *2	
GMJ107BB7473□AHT			X7R	0.047 μ	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	
GMJ107BB7104□AHT		35	X7R	0.1 μ	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	
GMJ107BB7224□AHT			X7R	0.22 μ	±10, ±20	10	150		0.8±0.20/-0	*1, *2	
GMJ107BB7474□AHT			X7R	0.47 μ	±10, ±20	10	150		0.8±0.20/-0	*1, *2	
GMJ107CB7105□AHR			X7R	1 μ	±10, ±20	10	150		0.8±0.25/-0	*1, *2	
UMJ107AB7102□AHT			50	X7R	1000 p	±10, ±20	3.5	200		0.8±0.15/-0.05	*1, *2
UMJ107AB7222□AHT				X7R	2200 p	±10, ±20	3.5	200		0.8±0.15/-0.05	*1, *2
UMJ107BB7472□AHT		X7R		4700 p	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	
UMJ107BB7103□AHT		X7R		0.01 μ	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	
UMJ107BB7223□AHT		X7R		0.022 μ	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	
UMJ107BB7473□AHT		X7R		0.047 μ	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	
UMJ107BB7104□AHT		100	X7R	0.1 μ	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	
HMJ107AB7102□AHT			X7R	1000 p	±10, ±20	3.5	200		0.8±0.15/-0.05	*1, *2	
HMJ107AB7222□AHT			X7R	2200 p	±10, ±20	3.5	200		0.8±0.15/-0.05	*1, *2	
HMJ107BB7472□AHT			X7R	4700 p	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	
HMJ107BB7103□AHT			X7R	0.01 μ	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	
HMJ107BB7223□AHT			X7R	0.022 μ	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	
HMJ107BB7473□AHT		100	X7R	0.047 μ	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	
HMJ107BB7104□AHT			X7R	0.1 μ	±10, ±20	3.5	200		0.8±0.20/-0	*1, *2	

● **212TYPE (Dimension:2.0×1.25mm JIS:2012 EIA:0805)**

[Temperature Characteristic B7 : X7R, C7 : X7S] 0.85mm thickness (D), 1.25mm thickness (G)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note	
							Rated voltage x %				
JMJ212CB7106□GHT		6.3	X7R	10 μ	±10, ±20	10	150		1.25±0.25/-0	*1, *2	
EMJ212CB7225□GHT		16	X7R	2.2 μ	±10, ±20	10	150		1.25±0.25/-0	*1, *2	
EMJ212CB7475□GHT			X7R	4.7 μ	±10, ±20	10	150		1.25±0.25/-0	*1, *2	
TMJ212CB7225□GHT		25	X7R	2.2 μ	±10, ±20	10	150		1.25±0.25/-0	*1, *2	
GMJ212CB7105□GHT		35	X7R	1 μ	±10, ±20	10	150		1.25±0.25/-0	*1, *2	
UMJ212BB7103□GHT			X7R	0.01 μ	±10, ±20	2.5	200		1.25±0.20/-0	*1, *2	
UMJ212BB7223□GHT		50	X7R	0.022 μ	±10, ±20	2.5	200		1.25±0.20/-0	*1, *2	
UMJ212BB7473□GHT			X7R	0.047 μ	±10, ±20	3.5	200		1.25±0.20/-0	*1, *2	
UMJ212BB7104□GHT			X7R	0.1 μ	±10, ±20	3.5	200		1.25±0.20/-0	*1, *2	
UMJ212BB7224□GHT			X7R	0.22 μ	±10, ±20	3.5	200		1.25±0.20/-0	*1, *2	
UMJ212CC7474□GHTE			X7S	0.47 μ	±10, ±20	3.5	150		1.25±0.25/-0	*1, *2	
UMJ212CB7105□GHT			X7R	1 μ	±10, ±20	10	150		1.25±0.25/-0	*1, *2	
HMJ212KB7102□DHT		100	X7R	1000 p	±10, ±20	3.5	200		0.85±0.15	*1, *2	
HMJ212KB7222□DHT			X7R	2200 p	±10, ±20	3.5	200		0.85±0.15	*1, *2	
HMJ212BB7472□GHT			X7R	4700 p	±10, ±20	3.5	200		1.25±0.20/-0	*1, *2	
HMJ212BB7103□GHT			X7R	0.01 μ	±10, ±20	3.5	200		1.25±0.20/-0	*1, *2	
HMJ212BB7223□GHT			X7R	0.022 μ	±10, ±20	3.5	200		1.25±0.20/-0	*1, *2	
HMJ212BB7473□GHT			X7R	0.047 μ	±10, ±20	3.5	200		1.25±0.20/-0	*1, *2	
HMJ212BB7104□GHT		100	X7R	0.1 μ	±10, ±20	3.5	200		1.25±0.20/-0	*1, *2	
HMJ212BB7224□GHT			X7R	0.22 μ	±10, ±20	3.5	200		1.25±0.20/-0	*1, *2	
HMJ212CC7474□GHTE			X7S	0.47 μ	±10, ±20	3.5	150		1.25±0.25/-0	*1, *2	
QMJ212KB7102□DHT			250	X7R	1000 p	±10, ±20	2.5	150		0.85±0.15	*1, *2
QMJ212KB7222□DHT				X7R	2200 p	±10, ±20	2.5	150		0.85±0.15	*1, *2
QMJ212BB7472□GHT				X7R	4700 p	±10, ±20	2.5	150		1.25±0.20/-0	*1, *2
QMJ212BB7103□GHT		X7R		0.01 μ	±10, ±20	2.5	150		1.25±0.20/-0	*1, *2	
QMJ212BB7223□GHT		X7R		0.022 μ	±10, ±20	2.5	150		1.25±0.20/-0	*1, *2	
QMJ212BB7473□GHT		X7R		0.047 μ	±10, ±20	2.5	150		1.25±0.20/-0	*1, *2	

● **316TYPE (Dimension:3.2×1.6mm JIS:3216 EIA:1206)**

[Temperature Characteristic B7 : X7R, C7 : X7S] 1.15mm thickness (F), 1.6mm thickness (L)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note	
							Rated voltage x %				
LMJ316BB7226□LHT		10	X7R	22 μ	±10, ±20	10	150		1.6±0.30	*1, *2	
EMJ316BB7475□LHT		16	X7R	4.7 μ	±10, ±20	10	150		1.6±0.30	*1, *2	
EMJ316BB7106□LHT			X7R	10 μ	±10, ±20	10	150		1.6±0.30	*1, *2	
TMJ316BB7474□LHT		25	X7R	0.47 μ	±10, ±20	3.5	200		1.6±0.30	*1, *2	
TMJ316BB7475□LHT			X7R	4.7 μ	±10, ±20	10	150		1.6±0.30	*1, *2	
TMJ316BB7106□LHT			X7R	10 μ	±10, ±20	10	150		1.6±0.30	*1, *2	
GMJ316BB7474□LHT		35	X7R	0.47 μ	±10, ±20	3.5	200		1.6±0.30	*1, *2	
GMJ316AB7225□LHT			X7R	2.2 μ	±10, ±20	10	150		1.6±0.20	*1, *2	
GMJ316BB7475□LHT			X7R	4.7 μ	±10, ±20	10	150		1.6±0.30	*1, *2	
GMJ316BB7106□LHT			X7R	10 μ	±10, ±20	10	150		1.6±0.30	*1, *2	
UMJ316BB7473□LHT			50	X7R	0.047 μ	±10, ±20	3.5	200		1.6±0.30	*1, *2
UMJ316BB7104□LHT				X7R	0.1 μ	±10, ±20	3.5	200		1.6±0.30	*1, *2
UMJ316BB7224□LHT		X7R		0.22 μ	±10, ±20	3.5	200		1.6±0.30	*1, *2	
UMJ316BB7474□LHT		X7R		0.47 μ	±10, ±20	3.5	200		1.6±0.30	*1, *2	
UMJ316BB7105□LHT		X7R		1 μ	±10, ±20	3.5	200		1.6±0.30	*1, *2	
UMJ316AB7225□LHT		X7R		2.2 μ	±10, ±20	10	150		1.6±0.20	*1, *2	
UMJ316BC7475□LHTE			X7S	4.7 μ	±10, ±20	2.5	150		1.6±0.30	*1, *2	

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CERAMIC CAPACITORS

PART NUMBER

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness ^{*3} [mm]	Note	
							Rated voltage x %				
HMJ316 B7102□FHT		100	X7R	1000 p	±10, ±20	3.5	200		1.15±0.10	*1, *2	
HMJ316 B7222□FHT			X7R	2200 p	±10, ±20	3.5	200		1.15±0.10	*1, *2	
HMJ316 B7472□FHT			X7R	4700 p	±10, ±20	3.5	200		1.15±0.10	*1, *2	
HMJ316KB7103□FHT			X7R	0.01 μ	±10, ±20	3.5	200		1.15±0.20	*1, *2	
HMJ316BB7223□LHT			X7R	0.022 μ	±10, ±20	3.5	200		1.6±0.30	*1, *2	
HMJ316BB7473□LHT			X7R	0.047 μ	±10, ±20	3.5	200		1.6±0.30	*1, *2	
HMJ316BB7104□LHT			X7R	0.1 μ	±10, ±20	3.5	200		1.6±0.30	*1, *2	
HMJ316BB7224□LHT			X7R	0.22 μ	±10, ±20	3.5	200		1.6±0.30	*1, *2	
HMJ316BB7474□LHT			X7R	0.47 μ	±10, ±20	3.5	200		1.6±0.30	*1, *2	
HMJ316BB7105□LHT			X7R	1 μ	±10, ±20	3.5	200		1.6±0.30	*1, *2	
HMJ316BC7225□LHTE			X7S	2.2 μ	±10, ±20	3.5	150		1.6±0.30	*1, *2	
QMJ316 B7102□FHT			250	X7R	1000 p	±10, ±20	2.5	150		1.15±0.10	*1, *2
QMJ316 B7222□FHT				X7R	2200 p	±10, ±20	2.5	150		1.15±0.10	*1, *2
QMJ316 B7472□FHT				X7R	4700 p	±10, ±20	2.5	150		1.15±0.10	*1, *2
QMJ316KB7103□FHT				X7R	0.01 μ	±10, ±20	2.5	150		1.15±0.20	*1, *2
QMJ316BB7223□LHT				X7R	0.022 μ	±10, ±20	2.5	150		1.6±0.30	*1, *2
QMJ316BB7473□LHT		X7R		0.047 μ	±10, ±20	2.5	150		1.6±0.30	*1, *2	
QMJ316BB7104□LHT		X7R		0.1 μ	±10, ±20	2.5	150		1.6±0.30	*1, *2	
SMJ316 B7102□FHT		630		X7R	1000 p	±10, ±20	2.5	120		1.15±0.10	*1, *2
SMJ316 B7222□FHT				X7R	2200 p	±10, ±20	2.5	120		1.15±0.10	*1, *2
SMJ316 B7472□FHT				X7R	4700 p	±10, ±20	2.5	120		1.15±0.10	*1, *2
SMJ316KB7103□FHT			X7R	0.01 μ	±10, ±20	2.5	120		1.15±0.20	*1, *2	
SMJ316BB7223□LHT			X7R	0.022 μ	±10, ±20	2.5	120		1.6±0.30	*1, *2	

● 325TYPE (Dimension:3.2×2.5mm JIS:3225 EIA:1210)

[Temperature Characteristic B7 : X7R , C7 : X7S] 1.9mm thickness (N) , 2.5mm thickness (M)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness ^{*3} [mm]	Note	
							Rated voltage x %				
JMJ325KB7476□MHHP		6.3	X7R	47 μ	±10, ±20	10	150		2.5±0.30	*1, *2	
EMJ325KB7226□MHHP		16	X7R	22 μ	±10, ±20	10	150		2.5±0.30	*1, *2	
TMJ325AB7475□MHHP		25	X7R	4.7 μ	±10, ±20	5	150		2.5±0.30	*1, *2	
TMJ325KB7106□MHHP			X7R	10 μ	±10, ±20	10	150		2.5±0.30	*1, *2	
GMJ325AB7475□MHHP		35	X7R	4.7 μ	±10, ±20	5	150		2.5±0.30	*1, *2	
GMJ325KB7106□MHHP			X7R	10 μ	±10, ±20	10	150		2.5±0.30	*1, *2	
UMJ325AB7225□MHHP		50	X7R	2.2 μ	±10, ±20	3.5	200		2.5±0.30	*1, *2	
UMJ325AB7475□MHHP			X7R	4.7 μ	±10, ±20	5	150		2.5±0.30	*1, *2	
UMJ325KB7106□MHHP			X7R	10 μ	±10, ±20	10	150		2.5±0.30	*1, *2	
HMJ325 B7223□NHT			100	X7R	0.022 μ	±10, ±20	3.5	200		1.9±0.20	*1, *2
HMJ325 B7473□NHT		X7R		0.047 μ	±10, ±20	3.5	200		1.9±0.20	*1, *2	
HMJ325 B7104□NHT		X7R		0.1 μ	±10, ±20	3.5	200		1.9±0.20	*1, *2	
HMJ325 B7224□NHT		X7R		0.22 μ	±10, ±20	3.5	200		1.9±0.20	*1, *2	
HMJ325 B7474□NHT		X7R		0.47 μ	±10, ±20	3.5	200		1.9±0.20	*1, *2	
HMJ325 B7105□NHT		X7R		1 μ	±10, ±20	3.5	200		1.9±0.20	*1, *2	
HMJ325AB7225□MHHP		X7R		2.2 μ	±10, ±20	3.5	200		2.5±0.30	*1, *2	
HMJ325KC7475□MHPE		X7S		4.7 μ	±10, ±20	3.5	150		2.5±0.30	*1, *2	
QMJ325 B7223□NHT		250		X7R	0.022 μ	±10, ±20	2.5	150		1.9±0.20	*1, *2
QMJ325 B7473□NHT				X7R	0.047 μ	±10, ±20	2.5	150		1.9±0.20	*1, *2
QMJ325 B7104□NHT			X7R	0.1 μ	±10, ±20	2.5	150		1.9±0.20	*1, *2	
QMJ325 B7224□NHT			X7R	0.22 μ	±10, ±20	2.5	150		1.9±0.20	*1, *2	
SMJ325 B7223□NHT		630	X7R	0.022 μ	±10, ±20	2.5	120		1.9±0.20	*1, *2	
SMJ325 B7473□NHT			X7R	0.047 μ	±10, ±20	2.5	120		1.9±0.20	*1, *2	

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PART NUMBER

LW Reversal Decoupling Capacitors (LWDC™)● **105TYPE (Dimension:0.52 × 1.0mm JIS:0510 EIA:0204)**

[Temperature Characteristic BJ : X5R] 0.3mm thickness(P)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness ^{*3} [mm]	Note
							Rated voltage x %			
TWK105 BJ104MPHF		25	X5R	0.1 μ	±20	5	150		0.3±0.05	*1, *2
EWK105 BJ224MPHF		16	X5R	0.22 μ	±20	10	150		0.3±0.05	*1, *2
LWK105 BJ474MPHF		10	X5R	0.47 μ	±20	10	150		0.3±0.05	*1, *2
AWK105 BJ105MPHF		4	X5R	1 μ	±20	10	150		0.3±0.05	*1, *2

[Temperature Characteristic C6 : X6S , C7 : X7S] 0.3mm thickness(P)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness ^{*3} [mm]	Note
							Rated voltage x %			
EWK105 C6104MPHF		16	X6S	0.1 μ	±20	5	150		0.3±0.05	*1, *2
LWK105 C7104MPHF		10	X7S	0.1 μ	±20	5	150		0.3±0.05	*1, *2
EWK105 C6224MPHF		10	X6S	0.22 μ	±20	10	150		0.3±0.05	*1, *2
JWK105 C7104MPHF		6.3	X7S	0.1 μ	±20	5	150		0.3±0.05	*1, *2
JWK105 C7224MPHF			X7S	0.22 μ	±20	10	150		0.3±0.05	*1, *2
JWK105 C6474MPHF			X6S	0.47 μ	±20	10	150		0.3±0.05	*1, *2
AWK105 C7224MPHF		4	X7S	0.22 μ	±20	10	150		0.3±0.05	*1, *2
AWK105 C6474MPHF			X6S	0.47 μ	±20	10	150		0.3±0.05	*1, *2

● **107TYPE (Dimension:0.8 × 1.6mm JIS:0816 EIA:0306)**

[Temperature Characteristic BJ : X5R] 0.5mm thickness(V)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness ^{*3} [mm]	Note
							Rated voltage x %			
LWK107 BJ105MVHT		10	X5R	1 μ	±20	10	150		0.5±0.05	*1, *2
JWK107 BJ225MVHT		6.3	X5R	2.2 μ	±20	10	150		0.5±0.05	*1, *2
JWK107 BJ475MVHT			X5R	4.7 μ	±20	10	150		0.5±0.05	*1, *2

[Temperature Characteristic B7 : X7R , C6 : X6S , C7 : X7S] 0.5mm thickness(V)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness ^{*3} [mm]	Note
							Rated voltage x %			
TWK107 B7104MVHT		25	X7R	0.1 μ	±20	5	150		0.5±0.05	*1, *2
EWK107 B7224MVHT		16	X7R	0.22 μ	±20	5	150		0.5±0.05	*1, *2
EWK107 B7474MVHT			X7R	0.47 μ	±20	5	150		0.5±0.05	*1, *2
LWK107 B7474MVHT		10	X7R	0.47 μ	±20	5	150		0.5±0.05	*1, *2
JWK107 C7105MVHT		6.3	X7S	1 μ	±20	10	150		0.5±0.05	*1, *2
AWK107 C6225MVHT		4	X6S	2.2 μ	±20	10	150		0.5±0.05	*1, *2
AWK107 C6475MVHT			X6S	4.7 μ	±20	10	150		0.5±0.05	*1, *2

● **212TYPE (Dimension:1.25 × 2.0mm JIS:1220 EIA:0508)**

[Temperature Characteristic BJ : X5R] 0.85mm thickness(D)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness ^{*3} [mm]	Note
							Rated voltage x %			
LWK212 BJ475[D]HT		10	X5R	4.7 μ	±10, ±20	10	150		0.85±0.10	*1, *2
JWK212 BJ106MDHT		6.3	X5R	10 μ	±20	10	150		0.85±0.10	*1, *2
AWK212 BJ226MDHT		4	X5R	22 μ	±20	10	150		0.85±0.10	*1, *2

[Temperature Characteristic C6 : X6S] 0.85mm thickness(D)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness ^{*3} [mm]	Note
							Rated voltage x %			
JWK212 C6475[D]HT		6.3	X6S	4.7 μ	±10, ±20	10	150		0.85±0.10	*1, *2

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• All the Multilayer Ceramic Capacitors of the catalog lineup are RoHS compliant.
 • Capacitance tolerance code is applied to □ of part number.
 • All the Multilayer Ceramic Capacitors in the catalog lineup are applicable for reflow-soldering.

Note)

• The exchange of individual specifications is necessary depending on the application and circuit condition. Please contact Taiyo Yuden sales channels.
 • *1: Automotive (AEC-Q200 Qualified) products
 < **AEC-Q200** :AEC-Q200 qualified>
 All the Multilayer Ceramic Capacitors of *1 marks are tested based on the test conditions and methods defined in AEC-Q200 family item.
 125°C products: AEC-Q200 Grade1 (we conduct the evaluation at the test condition of Grade1.)
 Please consult with TAIYO YUDEN's official sales channel for the details of the product specification and AEC-Q200 test results, etc.,
 and please review and approve TAIYO YUDEN's product specification before ordering.
 • *3: For standard case size, please kindly refer to ④Dimension, ⑤Dimension tolerance, ⑨Thickness and STANDARD EXTERNAL DIMENSIONS.

High Reliability Application Multilayer Ceramic Capacitors

● **105TYPE (Dimension:1.0×0.5mm JIS:1005 EIA:0402)**

[Temperature Characteristic B7 : X7R] 0.5mm thickness (V)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
UMF105 B7102□VHF		50	X7R	1000 p	±10, ±20	2.5	200		0.5±0.05	*1
UMF105 B7472□VHF			X7R	4700 p	±10, ±20	2.5	150		0.5±0.05	*1
UMF105 B7103□VHF			X7R	0.01 μ	±10, ±20	3.5	150		0.5±0.05	*1
TMF105 B7102□VHF		25	X7R	1000 p	±10, ±20	2.5	200		0.5±0.05	*1
TMF105 B7472□VHF			X7R	4700 p	±10, ±20	2.5	150		0.5±0.05	*1
TMF105 B7103□VHF			X7R	0.01 μ	±10, ±20	3.5	200		0.5±0.05	*1
TMF105 B7223□VHF		16	X7R	0.022 μ	±10, ±20	3.5	150		0.5±0.05	*1
EMF105 B7102□VHF			X7R	1000 p	±10, ±20	2.5	200		0.5±0.05	*1
EMF105 B7472□VHF			X7R	4700 p	±10, ±20	2.5	150		0.5±0.05	*1
EMF105 B7103□VHF		10	X7R	0.01 μ	±10, ±20	3.5	200		0.5±0.05	*1
EMF105 B7223□VHF			X7R	0.022 μ	±10, ±20	3.5	150		0.5±0.05	*1
EMF105 B7104□VHF			X7R	0.1 μ	±10, ±20	5	150		0.5±0.05	*1
LMF105 B7102□VHF		10	X7R	1000 p	±10, ±20	2.5	200		0.5±0.05	*1
LMF105 B7472□VHF			X7R	4700 p	±10, ±20	2.5	150		0.5±0.05	*1
LMF105 B7103□VHF			X7R	0.01 μ	±10, ±20	3.5	200		0.5±0.05	*1
LMF105 B7223□VHF		10	X7R	0.022 μ	±10, ±20	3.5	150		0.5±0.05	*1
LMF105 B7104□VHF			X7R	0.1 μ	±10, ±20	5	200		0.5±0.05	*1

● **107TYPE (Dimension:1.6×0.8mm JIS:1608 EIA:0603)**

[Temperature Characteristic B7 : X7R] 0.8mm thickness (A)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
UMF107 B7104□AHT		50	X7R	0.1 μ	±10, ±20	3.5	200		0.8±0.10	*1
TMF107 B7104□AHT		25	X7R	0.1 μ	±10, ±20	3.5	200		0.8±0.10	*1
EMF107 B7104□AHT		16	X7R	0.1 μ	±10, ±20	3.5	200		0.8±0.10	*1
EMF107 B7105□AHT			X7R	1 μ	±10, ±20	10	150		0.8±0.10	*1
LMF107 B7104□AHT		10	X7R	0.1 μ	±10, ±20	3.5	200		0.8±0.10	*1
LMF107 B7105□AHT			X7R	1 μ	±10, ±20	10	150		0.8±0.10	*1

● **212TYPE (Dimension:2.0×1.25mm JIS:2012 EIA:0805)**

[Temperature Characteristic B7 : X7R] 1.25mm thickness (G)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
UMF212 B7473□GHT		50	X7R	0.047 μ	±10, ±20	3.5	200		1.25±0.10	*1
TMF212 B7473□GHT		25	X7R	0.047 μ	±10, ±20	3.5	200		1.25±0.10	*1
EMF212 B7473□GHT		16	X7R	0.047 μ	±10, ±20	3.5	200		1.25±0.10	*1
EMF212AB7475□GHT			X7R	4.7 μ	±10, ±20	10	150		1.25+0.15/-0.05	*1
LMF212 B7473□GHT		10	X7R	0.047 μ	±10, ±20	3.5	200		1.25±0.10	*1
LMF212 B7475□GHT			X7R	4.7 μ	±10, ±20	10	150		1.25±0.10	*1

● **316TYPE (Dimension:3.2×1.6mm JIS:3216 EIA:1206)**

[Temperature Characteristic B7 : X7R] 1.6mm thickness (L)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
LMF316AB7106□LHT		10	X7R	10 μ	±10, ±20	10	150		1.6±0.20	*1
JMF316AB7106□LHT		6.3	X7R	10 μ	±10, ±20	10	150		1.6±0.20	*1

● **325TYPE (Dimension:3.2×2.5mm JIS:3225 EIA:1210)**

[Temperature Characteristic B7 : X7R] 2.5mm thickness (M)

Part number 1	Part number 2	Rated voltage [V]	Temperature characteristics	Capacitance [F]	Capacitance tolerance [%]	tan δ [%]	HTLT		Thickness*3 [mm]	Note
							Rated voltage x %			
UMF325 B7475□MHP		50	X7R	4.7 μ	±10, ±20	5	150		2.5±0.20	*1
TMF325 B7475□MHP		25	X7R	4.7 μ	±10, ±20	5	150		2.5±0.20	*1
EMF325 B7475□MHP		16	X7R	4.7 μ	±10, ±20	5	150		2.5±0.20	*1
LMF325 B7475□MHP		10	X7R	4.7 μ	±10, ±20	5	150		2.5±0.20	*1

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Multilayer Ceramic Capacitors

PACKAGING

① Minimum Quantity

● Taped package

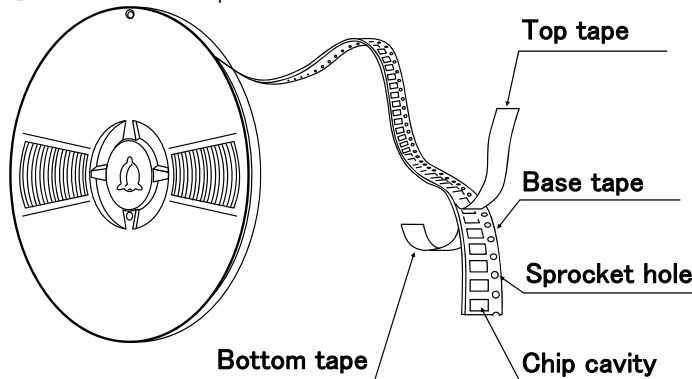
Type(EIA)	Thickness		Standard quantity [pcs]	
	mm	code	Paper tape	Embossed tape
<input type="checkbox"/> MK021(008004)	0.125	K	—	50000
<input type="checkbox"/> VS021(008004)				
<input type="checkbox"/> MK042(01005)	0.2	C, D	—	40000
<input type="checkbox"/> VS042(01005)				
<input type="checkbox"/> MK063(0201)	0.3	P, T	15000	—
<input type="checkbox"/> WK105(0204) ※	0.3	P	10000	—
<input type="checkbox"/> MK105(0402) <input type="checkbox"/> MF105(0402)	0.13	H	—	20000
	0.18	E	—	15000
	0.2	C	20000	—
	0.3	P	15000	—
	0.5	V	10000	—
<input type="checkbox"/> VK105(0402)	0.5	W	10000	—
<input type="checkbox"/> MK107(0603)	0.45	K	4000	—
<input type="checkbox"/> WK107(0306) ※	0.5	V	—	4000
<input type="checkbox"/> MF107(0603)	0.8	A	4000	—
<input type="checkbox"/> VS107(0603)	0.7	C	4000	—
<input type="checkbox"/> MJ107(0603)	0.8	A	3000	3000
<input type="checkbox"/> MK212(0805)	0.45	K	4000	—
<input type="checkbox"/> WK212(0508) ※	0.85	D		
<input type="checkbox"/> MF212(0805)	1.25	G	—	3000
<input type="checkbox"/> VS212(0805)	0.85	D	4000	—
<input type="checkbox"/> MJ212(0805)	0.85	D	4000	—
	1.25	G	—	2000
<input type="checkbox"/> MK316(1206) <input type="checkbox"/> MF316(1206)	0.85	D	4000	—
	1.15	F	—	3000
	1.6	L	—	2000
<input type="checkbox"/> MJ316(1206)	1.15	F	—	3000
	1.6	L	—	2000
<input type="checkbox"/> MK325(1210) <input type="checkbox"/> MF325(1210)	0.85	D	—	2000
	1.15	F		
	1.9	N		
	2.0max.	Y		
<input type="checkbox"/> MJ325(1210)	2.5	M	—	1000
	1.9	N	—	2000
<input type="checkbox"/> MK432(1812)	2.5	M	—	500(T), 1000(P)
	2.5	M	—	500

Note : ※ LW Reverse type.

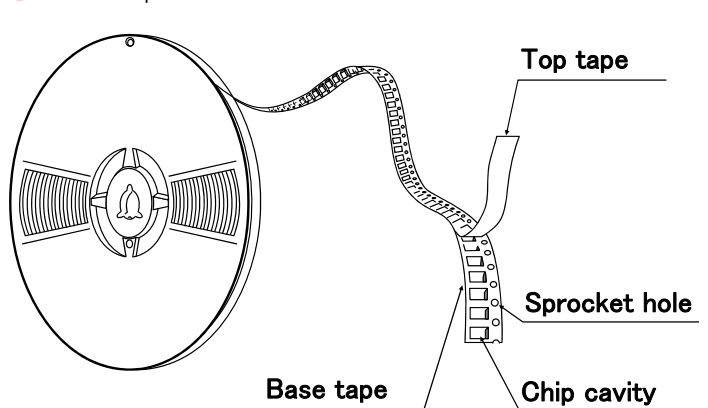
② Taping material

※No bottom tape for pressed carrier tape

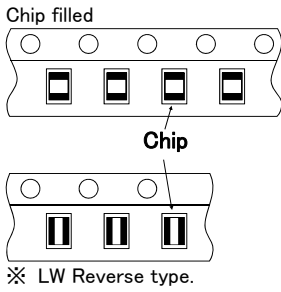
● Card board carrier tape



● Embossed tape



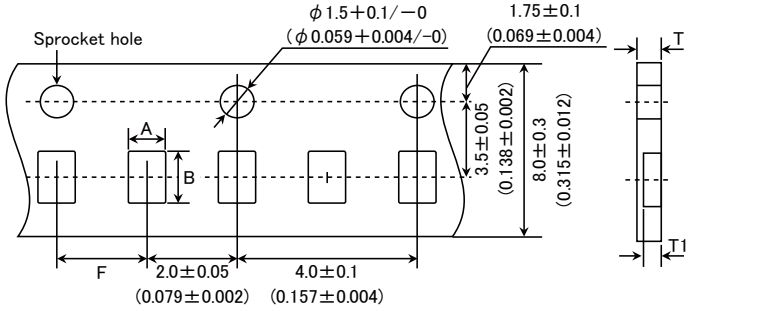
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③ Representative taping dimensions

● Paper Tape (8mm wide)

● Pressed carrier tape (2mm pitch)

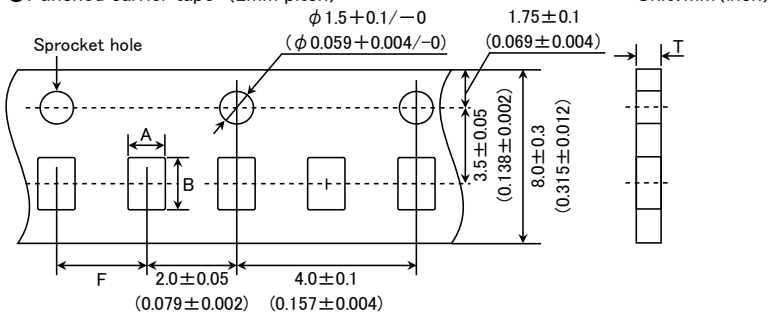


Type(EIA)	Chip Cavity		Insertion Pitch F	Tape Thickness	
	A	B		T	T1
□MK063(0201)	0.37	0.67	2.0±0.05	0.45max.	0.42max.
□WK105(0204) ※	0.65	1.15		0.4max.	0.3max.
□MK105(0402) (*1 C)				0.45max.	0.42max.
□MK105(0402) (*1 P)					

Note *1 Thickness, C: 0.2mm ,P: 0.3mm. ※ LW Reverse type.

Unit: mm

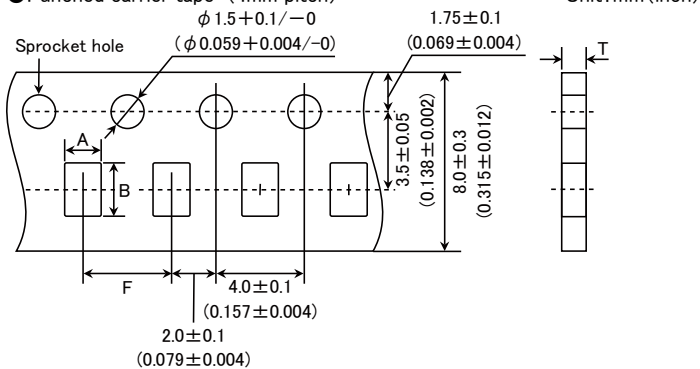
● Punched carrier tape (2mm pitch)



Type(EIA)	Chip Cavity		Insertion Pitch F	Tape Thickness
	A	B		T
□MK105 (0402)	0.65	1.15	2.0±0.05	0.8max.
□MF105 (0402)				
□VK105 (0402)				

Unit: mm

● Punched carrier tape (4mm pitch)

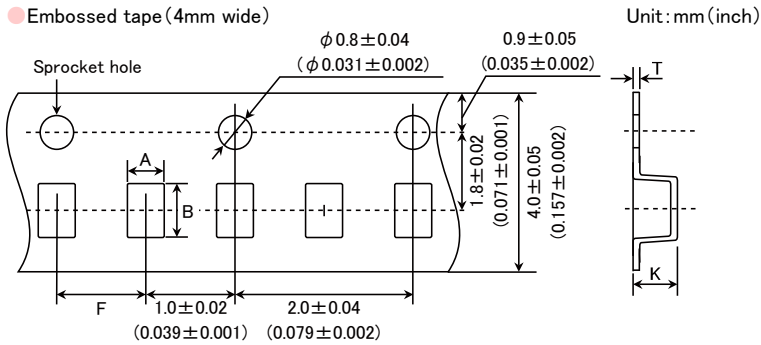


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Type(EIA)	Chip Cavity		Insertion Pitch	Tape Thickness
	A	B	F	T
□MK107(0603) □WK107(0306) ※ □MF107(0603)	1.0	1.8	4.0±0.1	1.1max.
□MK212(0805) □WK212(0508) ※	1.65	2.4		1.1max.
□MK316(1206)	2.0	3.6		

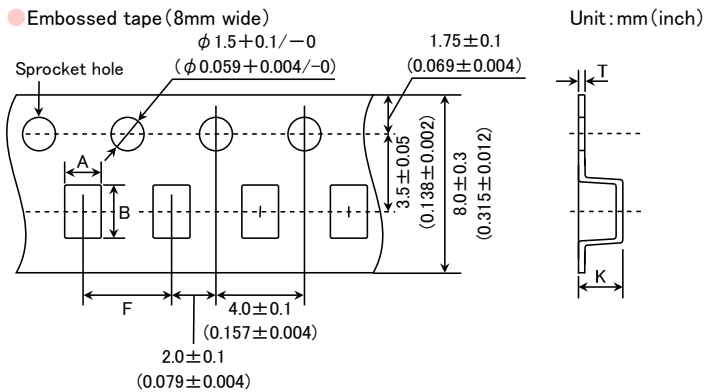
Note: Taping size might be different depending on the size of the product. ※ LW Reverse type.

Unit: mm



Type(EIA)	Chip Cavity		Insertion Pitch	Tape Thickness	
	A	B	F	K	T
□MK021(008004) □VS021(008004)	0.135	0.27	1.0±0.02	0.5max.	0.25max.
□MK042(01005) □VS042(01005)					

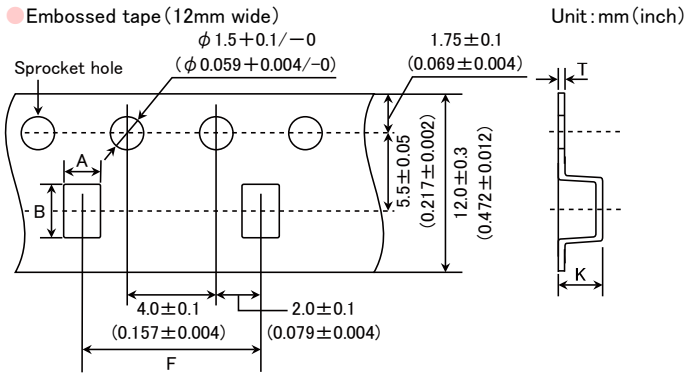
Unit: mm



Type(EIA)	Chip Cavity		Insertion Pitch	Tape Thickness	
	A	B	F	K	T
□MK105(0402)	0.6	1.1	2.0±0.1	0.6max	0.2±0.1
□WK107(0306) ※ □MK212(0805) □MF212(0805)	1.0	1.8	4.0±0.1	1.3max.	0.25±0.1
□MK316(1206) □MF316(1206)	2.0	3.6		3.4max.	0.6max.
□MK325(1210) □MF325(1210)	2.8	3.6			

Note: ※ LW Reverse type.

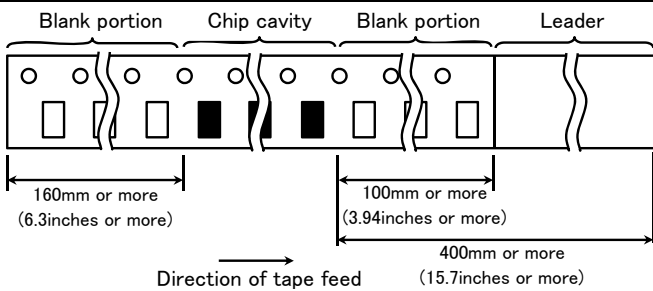
Unit: mm



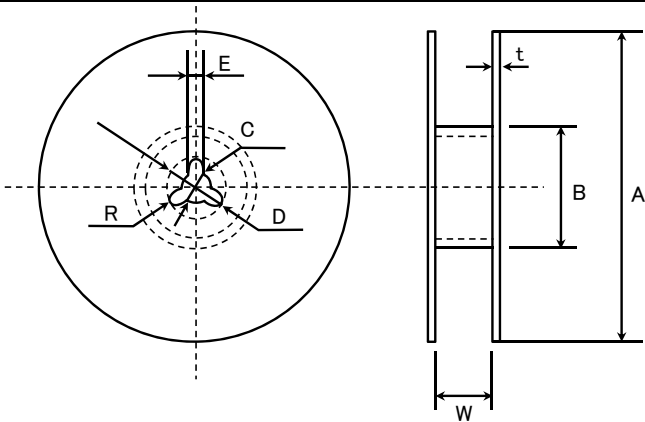
Type(EIA)	Chip Cavity		Insertion Pitch	Tape Thickness	
	A	B	F	K	T
□MK325(1210)	3.1	4.0	8.0 ± 0.1	4.0max.	0.6max.
□MK432(1812)	3.7	4.9	8.0 ± 0.1	4.0max.	0.6max.

Unit: mm

④Trailer and Leader



⑤Reel size



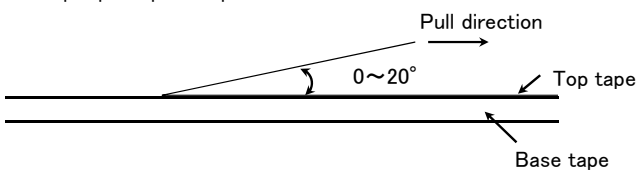
A	B	C	D	E	R
$\phi 178 \pm 2.0$	$\phi 50 \text{min.}$	$\phi 13.0 \pm 0.2$	$\phi 21.0 \pm 0.8$	2.0 ± 0.5	1.0

	T	W
4mm wide tape	1.5max.	5 ± 1.0
8mm wide tape	2.5max.	10 ± 1.5
12mm wide tape	2.5max.	14 ± 1.5

Unit: mm

⑥Top Tape Strength

The top tape requires a peel-off force of 0.1 to 0.7N in the direction of the arrow as illustrated below.



Multilayer Ceramic Capacitors

RELIABILITY DATA

1. Operating Temperature Range																										
Specified Value	Temperature Compensating (Class1)	Standard	-55 to +125°C																							
		High Frequency Type																								
	High Permittivity (Class2)																									
			<table border="1"> <thead> <tr> <th></th> <th>Specification</th> <th>Temperature Range</th> </tr> </thead> <tbody> <tr> <td rowspan="2">BJ</td> <td>B</td> <td>-25 to +85°C</td> </tr> <tr> <td>X5R</td> <td>-55 to +85°C</td> </tr> <tr> <td>B7</td> <td>X7R</td> <td>-55 to +125°C</td> </tr> <tr> <td>C6</td> <td>X6S</td> <td>-55 to +105°C</td> </tr> <tr> <td>C7</td> <td>X7S</td> <td>-55 to +125°C</td> </tr> <tr> <td>D7</td> <td>X7T</td> <td>-55 to +125°C</td> </tr> <tr> <td>LD(※)</td> <td>X5R</td> <td>-55 to +85°C</td> </tr> </tbody> </table>		Specification	Temperature Range	BJ	B	-25 to +85°C	X5R	-55 to +85°C	B7	X7R	-55 to +125°C	C6	X6S	-55 to +105°C	C7	X7S	-55 to +125°C	D7	X7T	-55 to +125°C	LD(※)	X5R	-55 to +85°C
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LD(※)	X5R	-55 to +85°C																								
			Note: ※LD Low distortion high value multilayer ceramic capacitor																							

2. Storage Conditions																										
Specified Value	Temperature Compensating (Class1)	Standard	-55 to +125°C																							
		High Frequency Type																								
	High Permittivity (Class2)																									
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LD(※)	X5R	-55 to +85°C																								
			Note: ※LD Low distortion high value multilayer ceramic capacitor																							

3. Rated Voltage			
Specified Value	Temperature Compensating (Class1)	Standard	50VDC, 25VDC
		High Frequency Type	50VDC, 25VDC
	High Permittivity (Class2)		50VDC, 35VDC, 25VDC, 16VDC, 10VDC, 6.3VDC, 4VDC, 2.5VDC

4. Withstanding Voltage (Between terminals)			
Specified Value	Temperature Compensating (Class1)	Standard	No breakdown or damage
		High Frequency Type	
	High Permittivity (Class2)		
Test Methods and Remarks		Class 1	Class 2
	Applied voltage	Rated volta × 3	Rated voltage × 2.5
	Duration	1 to 5 sec.	
	Charge/discharge current	50mA max.	

5. Insulation Resistance			
Specified Value	Temperature Compensating (Class1)	Standard	10000 MΩ min.
		High Frequency Type	
	High Permittivity (Class2) Note 1		C ≤ 0.047 μF : 10000 MΩ min. C > 0.047 μF : 500MΩ · μF
Test Methods and Remarks	Applied voltage	: Rated voltage	
	Duration	: 60 ± 5 sec.	
	Charge/discharge current	: 50mA max.	

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6. Capacitance (Tolerance)				
Specified Value	Temperature Compensating(Class1)	Standard	C□	0.2pF ≤ C ≤ 5pF : ±0.25pF
			U□	0.2pF ≤ C ≤ 10pF : ±0.5pF
			SL	C > 10pF : ±5% or ±10%
		High Frequency Type	CH	0.3pF ≤ C ≤ 2pF : ±0.1pF C > 2pF : ±5%
	High Permittivity (Class2)		BJ, B7, C6, C7, D7, LD(※) : ±10% or ±20% Note: ※LD Low distortion high value multilayer ceramic capacitor	
Test Methods and Remarks			Class 1	
			Standard	High Frequency Type
			Class 2	
			C ≤ 10 μF	C > 10 μF
	Preconditioning		None	
Measuring frequency		Thermal treatment (at 150°C for 1hr) Note 2		
Measuring voltage Note		1MHz ± 10%	1kHz ± 10%	120 ± 10Hz
Bias application		0.5 to 5Vrms	1 ± 0.2Vrms	0.5 ± 0.1rms
		one		

7. Q or Dissipation Factor				
Specified Value	Temperature Compensating(Class1)	Standard	C < 30pF : Q ≥ 400 + 20C C ≥ 30pF : Q ≥ 1000 (C: Nominal capacitance)	
			High Frequency Type	Refer to detailed specification
	High Permittivity (Class2) Note 1		BJ, B7, C6, C7, D7: 2.5% max.	
Test Methods and Remarks			Class 1	
			Standard	High Frequency Type
			Class 2	
			C ≤ 10 μF	C > 10 μF
	Preconditioning		None	
Measuring frequency		Thermal treatment (at 150°C for 1hr) Note 2		
Measuring voltage Note 1		1MHz ± 10%	1GHz	1kHz ± 10%
Bias application		0.5 to 5Vrms	1 ± 0.2Vrms	0.5 ± 0.1Vrms
		None		
High Frequency Type				
Measuring equipment		: HP4291A		
Measuring jig		: HP16192A		

8. Temperature Characteristic (Without voltage application)						
Specified Value	Temperature Compensating(Class1)	Standard	Temperature Characteristic [ppm/°C]		Tolerance [ppm/°C]	
			C□ : 0	CG, CH, C, J, CK	G : ±30 H : ±60 J : ±120 K : ±250	
			U□ : -750	UJ, UK		
			SL : +350 to -1000			
		High Frequency Type	Temperature Characteristic [ppm/°C]		Tolerance [ppm/°C]	
			C□ : 0		H : ±60	
	High Permittivity (Class2)		Specification	Capacitance change	Reference temperature	Temperature Range
			B	±10%	20°C	-25 to +85°C
			X5R	±15%	25°C	-55 to +85°C
			X7R	±15%	25°C	-55 to +125°C
			X6S	±22%	25°C	-55 to +105°C
			X7S	±22%	25°C	-55 to +125°C
			X7S	+22/-33%	25°C	-55 to +125°C
			LD(※)	X5R	±15%	25°C
	Note : ※LD Low distortion high value multilayer ceramic capacitor					

Test Methods and Remarks	Class 1				
	Capacitance at 20°C and 85°C shall be measured in thermal equilibrium, and the temperature characteristic shall be calculated from the following equation.				
	$\frac{(C_{85} - C_{20})}{C_{20} \times \Delta T} \times 10^6 (\text{ppm}/^\circ\text{C}) \quad \Delta T = 65$				
	Class 2				
	Capacitance at each step shall be measured in thermal equilibrium, and the temperature characteristic shall be calculated from the following equation.				
	Step	B	X5R, X7R, X6S, X7S, X7T		
	1	Minimum operating temperature			
	2	20°C	25°C		
	3	Maximum operating temperature			

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	$\frac{(C - C_2)}{C_2} \times 100(\%)$ <p>C : Capacitance in Step 1 or Step 3 C2 : Capacitance in Step 2</p>
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9. Deflection

Specified Value	Temperature Compensating(Class1)	Standard	Appearance : No abnormality Capacitance change : Within $\pm 5\%$ or ± 0.5 pF, whichever is larger.
		High Frequency Type	Appearance : No abnormality Capacitance change : Within ± 0.5 pF
	High Permittivity (Class2)		Appearance : No abnormality Capacitance change : Within $\pm 12.5\%$ (BJ, B7, C6, C7, D7, LD(※)) Note: ※LD Low distortion high value multilayer ceramic capacitor

Test Methods and Remarks	<table border="1"> <tr> <th colspan="2">Multilayer Ceramic Capacitors</th> </tr> <tr> <td>042, 063, ※1105 Type</td> <td>The other types</td> </tr> <tr> <th colspan="2">Glass epoxy-resin substrate</th> </tr> <tr> <td>Thickness</td> <td>0.8mm 1.6mm</td> </tr> <tr> <td>Warp</td> <td>1mm (Soft Termination type:3mm)</td> </tr> <tr> <td>Duration</td> <td>10 sec.</td> </tr> </table> <p>※1:105 Type thickness, C: 0.2mm, P: 0.3mm.</p>	Multilayer Ceramic Capacitors		042, 063, ※1105 Type	The other types	Glass epoxy-resin substrate		Thickness	0.8mm 1.6mm	Warp	1mm (Soft Termination type:3mm)	Duration	10 sec.	<p>(Unit: mm)</p> <p>Capacitance measurement shall be conducted with the board bent</p>
	Multilayer Ceramic Capacitors													
042, 063, ※1105 Type	The other types													
Glass epoxy-resin substrate														
Thickness	0.8mm 1.6mm													
Warp	1mm (Soft Termination type:3mm)													
Duration	10 sec.													

10. Body Strength

Specified Value	Temperature Compensating(Class1)	Standard	—
		High Frequency Type	No mechanical damage.
	High Permittivity (Class2)		—

Test Methods and Remarks	<p>High Frequency Type Applied force : 5N Duration : 10 sec.</p>
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11. Adhesive Strength of Terminal Electrodes

Specified Value	Temperature Compensating(Class1)	Standard	No terminal separation or its indication.
		High Frequency Type	
	High Permittivity (Class2)		

Test Methods and Remarks	<table border="1"> <tr> <th colspan="2">Multilayer Ceramic Capacitors</th> </tr> <tr> <td>042, 063 Type</td> <td>105 Type or more</td> </tr> <tr> <td>Applied force</td> <td>2N 5N</td> </tr> <tr> <td>Duration</td> <td>30 ± 5 sec.</td> </tr> </table>	Multilayer Ceramic Capacitors		042, 063 Type	105 Type or more	Applied force	2N 5N	Duration	30 ± 5 sec.	
	Multilayer Ceramic Capacitors									
	042, 063 Type	105 Type or more								
Applied force	2N 5N									
Duration	30 ± 5 sec.									

12. Solderability

Specified Value	Temperature Compensating(Class1)	Standard	At least 95% of terminal electrode is covered by new solder.
		High Frequency Type	
	High Permittivity (Class2)		

Test Methods and Remarks		Eutectic solder	Lead-free solder
	Solder type	H60A or H63A	Sn-3.0Ag-0.5Cu
	Solder temperature	230 ± 5°C	245 ± 3°C
	Duration	4 ± 1 sec.	

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13. Resistance to Soldering

Specified Value	Temperature Compensating(Class1)	Standard	Appearance : No abnormality Capacitance change : Within $\pm 2.5\%$ or $\pm 0.25\text{pF}$, whichever is larger. Q : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality
		High Frequency Type	Appearance : No abnormality Capacitance change : Within $\pm 2.5\%$ Q : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality
	High Permittivity (Class2) Note 1		Appearance : No abnormality Capacitance change : Within $\pm 7.5\%$ (BJ, B7, C6, C7, D7, LD(※)) Dissipation factor : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality Note: ※LD Low distortion high value multilayer ceramic capacitor

Test Methods and Remarks	Iss 1			
		042, 063 Type	105 Type	
	Preconditioning	None		
	Preheating	150°C, 1 to 2 min.	80 to 100°C, 2 to 5 min. 150 to 200°C, 2 to 5 min.	
	Solder temp.	270 \pm 5°C		
	Duration	3 \pm 0.5 sec.		
	Recovery	6 to 24 hrs (Standard condition) Note 5		
	Class 2			
		042, 063 Type	105, 107, 212 Type	316, 325 Type
	Preconditioning	Thermal treatment (at 150°C for 1 hr) Note 2		
	Preheating	150°C, 1 to 2 min.	80 to 100°C, 2 to 5 min. 150 to 200°C, 2 to 5 min.	80 to 100°C, 5 to 10 min. 150 to 200°C, 5 to 10 min.
	Solder temp.	270 \pm 5°C		
	Duration	3 \pm 0.5 sec.		
	Recovery	24 \pm 2 hrs (Standard condition) Note 5		

14. Temperature Cycle (Thermal Shock)

Specified Value	Temperature Compensating(Class1)	Standard	Appearance : No abnormality Capacitance change : Within $\pm 2.5\%$ or $\pm 0.25\text{pF}$, whichever is larger. Q : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality
		High Frequency Type	Appearance : No abnormality Capacitance change : Within $\pm 0.25\text{pF}$ Q : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality
	High Permittivity (Class2) Note 1		Appearance : No abnormality Capacitance change : Within $\pm 7.5\%$ (BJ, B7, C6, C7, D7, LD(※)) Dissipation factor : Initial value Insulation resistance : Initial value Withstanding voltage (between terminals) : No abnormality Note: ※LD Low distortion high value multilayer ceramic capacitor

Test Methods and Remarks	Class 1		Class 2	
	Preconditioning	Thermal treatment (at 150°C for 1 hr) Note 2		
	1 cycle		None	
			Step	Temperature (°C)
			1	Minimum operating temperature
			2	Normal temperature
	3	Maximum operating temperature		
	4	Normal temperature		
Number of cycles	5 times			
Recovery	6 to 24 hrs (Standard condition) Note 5		24 \pm 2 hrs (Standard condition) Note 5	

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